

CREATING IDENTITY AND BUILDING REPUTATION:
PUBLIC RELATIONS PRACTICES OF SMALL BUSINESSES IN AN EMERGING
FIELD

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A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill
in partial fulfillment of the requirement for the degree of Doctor of Philosophy in the
School of Journalism and Mass Communication.

Chapel Hill
2011

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ABSTRACT

Nell Ching Ling Huang:
Creating Identity and Building Reputation:
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(Under the Direction of Dr. Craig E. Carroll)

This dissertation explores the identity and reputation management activities of small businesses in an emerging field and investigates the relationship between organizational identity and corporate reputation. The emerging field chosen as a context for this study was nanotechnology. The study employed a mixed-methods approach using interviewing and content analysis methods.

First, this study examined how small nanotechnology firms create identity and build reputation. Interviews were conducted with 23 managers at small nanotechnology firms and 14 other persons who work with or are familiar with small nanotechnology firms. Thematic analysis of the interview transcripts found four themes related to identity creation and four themes related to reputation management.

Second, this study identified challenges and opportunities the firms face in the process of creating identity and building reputation. Again, using thematic analysis of the interview transcripts, nine themes related to both challenges and opportunities emerged.

Third, using a customized values instrument, this study explored the identity-related values the firms expressed in their corporate materials. The computer analysis of

the firms' corporate materials found that the five most communicated identity values were helpfulness, ambition, collaboration, innovation, and social recognition.

Fourth, the study investigated the reputation of the nanotechnology firms as represented in the news media. Findings showed that some of the nanotechnology firms were more prominent in the news media than others and that all of the firms were often held in high esteem by the news media. Additionally, the firms were most often portrayed as showing prospects for future growth, leading in innovation, having strong leaders and leaders with clear visions for the future, and producing high quality products.

In sum, the study explored the relationship between the identity and the reputation of the small nanotechnology firms. Qualitative comparison of the identity values expressed in the corporate materials and the reputation attributes portrayed in the news articles indicate a relationship exists between the identity and the reputation of the firms.

Based on the findings, an identity and reputation management model for small firms is proposed. Implications for public relations educators and for small firms in an emerging field are also discussed.

DEDICATION

To my husband, Ira, and my parents.

ACKNOWLEDGMENTS

My journey to the completion of this project would not have been possible without the unconditional love and support of my family. First and foremost, I would like to thank my parents for trusting me to find my path in life. I am fortunate to have parents whom I consider my closest friends. Thank you for always being there when I needed intellectual and emotional advice, and for always believing that I can accomplish anything I set my mind to.

I would like to thank my husband, Ira, for his patience during the years I had to spend away from home to pursue my doctoral degree, and for his companionship throughout the past seven years. Thank you for being my rock and my anchor.

My brother, Nelson, has always been there for me when I need someone to talk to. I am pleased that we have grown closer as the years have gone by, despite our being thousands of miles apart. I would also like to acknowledge my second family, Aunt Ling, Uncle Julian, and my cousins Erica and Steve, who have provided me with a home away from home, and have unselfishly accepted me as part of their family. Also, I am lucky to have my parents-in-law, Maryanne and Ellis, who have done more for me than they will ever admit.

My dissertation and committee chair, Dr. Craig Carroll, has continuously pushed me to strive for intellectual excellence since the first day I stepped into his classroom as a second-year undergraduate student in college. If he had not provided me, an inexperienced undergraduate, with the opportunity to work with him as a research

assistant, I certainly would not have discovered my passion for academic teaching and research. Working with Dr. Carroll has been a challenging yet fulfilling experience. I look forward to continuing our professional relationship and friendship in the future.

I am very grateful to have a wonderful and supportive committee: Dr. Patricia Parker, Dr. Richard Blackburn, Dr. Lois Boynton, and Dr. Daniel Riffe. My committee members have helped me tremendously in the learning and dissertation processes. Each and every one of them has made me a better theoretician, writer, researcher, and social scientist.

I would also like to thank Dr. Sandy Green for introducing the world of nanotechnology to me, and for providing professional and personal mentorship for the past few years. He has taught me how to integrate creativity and rigor into my academic writing and research.

The people at Carroll Hall have made my time at Carolina an enriching and unforgettable experience. I am fortunate to have a collaborative and supportive PhD cohort: Woodrow Hartzog, Yeuseung Kim, Temple Northup, Sheetal J. Patel, David Remund, Autumn Shafer, Brooke Weberling, and Bartosz W. Wojdyski. Thank you for offering encouragement, for listening to incessant complaining at times, for sharing tips and advices on how to survive the program, and most of all, for always leaving your office doors open to me (figuratively speaking). I will always treasure our outings, holiday gatherings, conversations, and office parties. Thank you to many other colleagues at Carroll Hall for their friendship and support, and to Cindy Anderson for her cheerful guidance. And finally, words cannot express my appreciation for Sun Young Lee, who is a colleague, co-author, roommate, friend, and most importantly, family.

Last but not least, I would like to express my gratitude to my research assistants, Mabel Hsu and Cory Tarlton, to the anonymous participants in this study, and to those individuals who have pointed me in the right direction. To you, I offer my most sincere thanks. Without you, this dissertation would not have been possible.

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CHAPTER 1

INTRODUCTION

Small firms represent 99.7% of all employer firms in the United States (U.S. Small Business Administration, 2009). It would be reasonable, then, to expect that, as scholars, we have an adequate level of knowledge about the public relations practices of small firms. On the contrary, however, a review of the literature shows that the public relations and organizational communication literature has not adequately addressed either small organizations or public relations practices in small organizations; in fact, most of the research in this area has appeared in the management science literature.

This dissertation takes the first step toward providing an in-depth examination of how small businesses—defined in this dissertation as firms having fewer than 100 employees—practice public relations, particularly in the area of identity and reputation management. The present study places a particular emphasis on identity and reputation management because, while the public relations function includes a wide range of activities, it is inherently concerned with managing an organization's identity and reputation (Cheney & Christensen, 2001; Cheney & Vibbert, 1987). In other words, public relations activities are ultimately identity and reputation management activities.

This dissertation combines scholarship in public relations, organizational communication, and management. Although organizational identity has only recently attracted attention from scholars in public relations (e.g., Gilpin, 2008; Lellis, 2007; Sha, 2009), scholars in organizational communication, and particularly in management, have

long taken an interest in the concept. Furthermore, institutional theory, originating from management scholarship, provides an explanation and description for organizations' attempts to form identity and build reputation, particularly in emerging fields.

Albert and Whetten (1985) set forth an oft-cited definition which describes *organizational identity* as the features of an organization that are claimed to be central, enduring, and distinct. Whetten (2006) and Whetten and Mackey (2002) later distinguished between identity *in* organizations and the identity *of* organizations. Identity *in* organizations concerns the collective identity of the organizational members, whereas the identity *of* organizations relates to the identity of the organization as an entity. The present study focuses on the latter perspective, which is enabled by the conceptualization of organizations as *corporate* or *social actors* (Cheney, 1992; Whetten & Mackey, 2002). The distinction between the two perspectives on identity is important, because the conception of an organization as a social actor allows for empirical studies at the organizational level, as well as at the field level. An *organizational field* can be defined as the aggregate of organizations that constitute a “recognized area of institutional life,” including suppliers, consumers, regulatory agencies, partners, or competitors (DiMaggio & Powell, 1983, p. 148). As Whetten and Godfrey (1998) observed, identity is especially useful in the empirical sense because it links multiple levels of analysis. The ability to analyze organizational identity at the organizational and field levels also enables researchers to empirically and simultaneously study identity and reputation.

Corporate, or *organizational*, *reputation* refers to what is generally said about an organization (Carroll, 2008a). Reputation has also been defined as stakeholders' evaluation of an organization in terms of their “affect, esteem, and knowledge”

(Deephouse, 2000, p. 1093). Additionally, Murphy (2010) noted that reputation is accumulated over time.

Reputation and identity are closely intertwined. Put simply, identity and reputation are two sides of the same coin; identity relates to perceptions originating from within the organization, while reputation is based on perceptions existing outside of the organization. Bouchikhi et al. (1998) noted that reputation is the evaluation and assessment of organizational identity, while organizational identity incorporates reputational feedback. Similarly, Whetten and Mackey (2002) contended that reputation is a form of stakeholder feedback regarding the credibility of an organization's identity claims. Viewed in this way, studies that focus exclusively on either identity or reputation may not be providing a comprehensive picture of an organization and its public relations practices.

The news media play a key role in the relationship between identity and reputation, as they provide a space for key stakeholders to offer feedback and for organizations to receive feedback. The news media can serve as a mirror, reflecting the identity of an organization (Corley & Gioia, 2004; Elsbach & Kramer, 1996; Glynn, 2000), as well as creating and changing organizational identities (Dutton & Dukerich, 1991; Kjærgaard, Morsing, & Ravasi, 2011; Morsing, 1999). The news media also play an important part in building and influencing reputation (Carroll, 2011a, 2011b; Carroll & McCombs, 2003).

Scholars have recognized identity and reputation management as important public relations functions (Cheney & Christensen, 2001; Curtin & Gaither, 2006; Doorley & Garcia, 2007). An organization's identity and reputation are intangible assets that have

an influence on many aspects of an organization, including its financial performance (Deephouse, 2000; Roberts & Dowling, 2002; Voss, Cable, & Voss, 2006); its ability to attract employees, investors, customers, and business partners (Bouchikhi & Kimberly, 2008; Fombrun, 1996); and its core competencies (Glynn, 2000).

Identity and reputation are particularly relevant, and indeed, crucial, for small businesses. Gaining both legitimacy and recognition from external social institutions is necessary for small firms' survival. A similar yet distinct identity helps an organization fit in with existing social institutions (Cheney & Vibbert, 1987; Pedersen & Dobbin, 2006; Whetten & Mackey, 2002), and a positive or favorable reputation can assist an organization in gaining legitimacy (Staw & Epstein, 2000). Organizations' attempts to establish identities that are both similar to other organizations and yet distinct, and their efforts to build favorable reputations in order to gain legitimacy, can be explained by institutional theory. In sum, if a small firm is able to establish a similar yet distinct identity *and* build a favorable reputation, it may help the firm ensure its survival and ultimately achieve growth by improving its financial performance, increasing its human and financial resources, and obtaining legitimacy and recognition from external social institutions.

The literature on institutional theory, based largely on the work of Meyer and Rowan (1977) and DiMaggio and Powell (1983), describes how organizational behaviors may be influenced by pressures from social expectations and institutions (Greenwood & Hining, 1996). The main goal of organizations is to achieve a legitimate status. From the institutional perspective, then, small firms' identities and reputations can be seen as

responses to institutional pressures and as ways in which they may gain legitimacy in existing social institutions.

This dissertation explores how small firms create identity and build reputation, particularly in an emerging field. Identity and reputation management can be more difficult, but are also more pressing, for small firms operating in emerging fields. Small firms operating in an emerging field essentially face two levels of obstacles: not only do they have to legitimize their own identity and reputation, but they also have to legitimize the identity and reputation of the field in which they operate (Aldrich & Fiol, 1994; Clegg, Rhodes, & Kornberger, 2007; Rindova, Petkova, & Kotha, 2007). Such firms may first have to legitimize the emerging field before they are able to legitimize their own identity and reputation, or they may help legitimize the field through establishing their own identity and reputation. Regardless of which strategy small firms undertake, it is difficult to establish an identity and reputation when a field is still ambiguous and poorly understood (Clegg et al., 2007). Therefore, for small firms in emerging fields to obtain legitimacy through establishing an identity and building favorable reputation, they may have to be particularly creative and strategic in their public relations efforts.

An examination of small firms' public relations activities in emerging fields may provide important insights that help improve public relations theory and practice. Existing public relations theory and empirical studies have placed an emphasis on large organizations (e.g., Grunig, Grunig, & Dozier, 2002; David, Kline, & Dai, 2005; Hung, 2005). These large organizations tend to operate in established fields, although some may have departments that also have some involvement in emerging fields. While scholars have highlighted the fact that the public relations practices of small firms differ

from those of large companies (e.g., Cole, 1989; Goldberg, Cohen, & Fiegenbaum, 2003; Otterbourg, 1966) and have emphasized the need to correct the bias of public relations research toward large businesses (Evatt, Ruiz, & Triplett, 2005; Gray, Davis, & Blanchard, 2004), this area of research has been deficient. The present study takes the first step in addressing this deficiency by examining how small businesses practice public relations in an emerging field. By doing so, this study hopes to contribute to the improvement of public relations theory and practice.

To achieve this goal, I took a mixed-methods approach. First, I conducted interviews with managers holding the highest communication position in small nanotechnology firms, as well as with others who are also involved in the field, including government officials, scientists, and academicians. Interviews with managers at small nanotechnology firms allowed me to gain an understanding of how these firms create identity and build reputation and how they view their peers' identity and reputation in the field. Interviews with others who are also involved in nanotechnology provided insight into how those outside of small firms view the identity and reputation of such firms. In addition, I content analyzed corporate materials of the firms studied, to explore how they communicate their identity, and news articles about the firms studied, to explore their media reputation.

The following chapters review literature on the relevant theoretical and conceptual frameworks, provide background on small businesses and emerging fields, and describe the methods for exploring the identity formation and reputation building activities of small enterprises. Chapter 2 reviews the relevant literature on organizational identity, reputation, and institutional theory. It also provides a discussion of

organizational image because, while organizational image is not the focus of this dissertation, it is difficult to discuss identity or reputation without some acknowledgement of image. The chapter also surveys the role of the news media in influencing an organization's identity and reputation.

Chapter 3 provides the background on small businesses and emerging fields. It defines a small business and compares small firms to large ones, specifically in terms of legitimacy, strategic flexibility, and relationship-building. The chapter reviews the small body of work that has either directly or indirectly addressed how small firms practice public relations. Further, borrowing from literature on new firms and emerging industries, it delineates the difficulties facing small firms operating in an emerging field.

Chapter 4 introduces the research questions and describes the methods used in this dissertation. The chapter explores the emerging field of nanotechnology as the context for this study. It then provides reasons for using a mixed-methods approach and describes how this dissertation seeks to answer the proposed research questions. Next, the chapter describes the data collection process as well as how the data collected are analyzed, and finally, discusses the limitations of the methodologies used in this dissertation.

Chapter 5 provides a descriptive analysis of the data, including the themes that emerged from the interview transcripts. It describes the findings from the content analysis of corporate materials and of news articles about the firms studied. It discusses the separate analyses conducted for individual companies, as well as for the companies as a collective, and compares the results from the identity and reputation analyses. Chapter 6 answers each of the research questions. Finally, Chapter 7 presents a summary and the

conclusions of this dissertation. It also discusses the limitations of this study and offers directions for future research.

CHAPTER 2

LITERATURE REVIEW

This chapter begins by reviewing relevant literature on organizational identity and corporate reputation. Next, it describes the role of the news media in influencing an organization's identity and reputation. The chapter also discusses the interrelationship between identity and reputation and discusses organizational image as a theoretical concept relevant to both identity and reputation. Finally, it reviews literature on institutional theory and describes how the theory relates to organizational identity and reputation.

Organizational Identity

One of the most-cited definitions of *organizational identity* is that of Albert and Whetten (1985), who defined organizational identity as the features of an organization that are central, enduring, and distinct. Whetten (2006) added that the central, enduring, and distinctive attributes of an organization are referred to as *organizational identity claims*, or *identity referents*. These referents help an organization define its uniqueness in terms of the social space it occupies and the commitments it undertakes. Whetten (2006) further clarified that “not all institutionalized organizational features qualify as identity referents, but all identity referents must be institutionalized features of an organization” (p. 228).

Organizational identity influences the core competencies of an organization, and how it identifies, approaches, and resolves issues, as well as how it allocates its resources (Glynn, 2000). For example, Dutton and Dukerich's (1991) case study on the Port Authority of New York and New Jersey examined how that organization responded to the issue of a homeless population at its facilities. They found that the Port Authority's identity shaped how its employees interpreted the issue in three ways. First, the organization's identity served as an essential reference point which members used to assess the importance of the issue. Second, members' sense of the importance of the issue was related to whether the organization's actions were consistent with its identity. When the organizational action was seen as inconsistent with its identity, members judged the issue to be more important. Finally, the Port Authority's identity influenced how its members interpreted the meaning of the issue. As this case illustrates, organizational identity can shape members' interpretation of an issue and influence their commitment to, involvement in, or resistance to an organization's actions.

Bouchikhi and Kimberly (2008) described both the internal and the external benefits of having an identity that is clear, consistent, and valued. Internally, a clear, consistent, and valued identity increases the loyalty and commitment of employees, ensures cooperation among employees, serves as a guide for problem-solving and decision-making, and helps an organization obtain legitimacy. Externally, a clear, consistent, and socially valued identity increases recognition of the organization (reputation); attracts employees, customers, and other business partners; and nurtures a feeling of trust. Organizational identity also influences financial performance: Voss, Cable, and Voss's (2006) study of more than 100 nonprofit professional theatres

demonstrated that organizations' net income and ticket revenue were lower when their leaders disagreed about organizational identity.

When discussing organizational identity, it is important to consider its fluidity and multiplicity. Albert and Whetten (1985) contended that there is not just one statement of organizational identity, but rather "multiple equally valid statements relative to different audiences for different purposes" (p. 268). It is undesirable for an organization to have a narrowly-defined identity because the view of "who we are as an organization" *can* and *should* vary depending on the stakeholders (Albert & Whetten, 1985; Cheney, 1992).

There is a difference, however, between an organization having various identity claims that are focused on a central theme and having identity claims based on diverse views about what its central, enduring, and distinctive features are. It is necessary, therefore, to distinguish between an organization having an identity that is fluid and adaptive (Gioia, Schultz, & Corley, 2000) and an organization having multiple identities based on conflicting (Albert & Whetten, 1985) or heterogeneous (Humphreys & Brown, 2002; Pratt & Foreman, 2000) "collective claims, beliefs, and narratives" (Illia, 2010, p. 329).

Gioia, Schultz, and Corley (2002) posited that it is more important to manage and balance a flexible identity than to preserve a fixed one, because an organization's external images are constantly shifting. Scholars and managers, Gioia et al. suggested, should consider identity as a dynamic and unstable concept because of the reciprocal relationship between organizational identity and various forms of image: "Image often acts as a destabilizing force on identity, frequently requiring members to revisit and reconstruct their organizational sense of self" (p. 68). Simply put, an organization needs to continuously align how it defines itself with how the external environment defines the

organization. The relationship between identity and image is further clarified in the section below on the concept of image.

The adaptive instability of an organization's identity is beneficial to an organization because it allows it to adapt to the demands and needs of stakeholders and the environment, which are constantly changing, and without such adaptive instability, Gioia et al. (2000) argued, an organization may find itself "unprepared to address demands that might have survival implications" (p. 74). Similarly, Albert and Whetten (1985) contended that "ambiguous classification may prevent the organization from being typecast and thereby rendered more predictable than desired" (p. 268). Organizations change over time, just as the environment changes over time; thus, a fixed or precise classification of "who we are" as an organization can quickly become outdated (Albert & Whetten, 1985). The fluidity of organizational identity, therefore, refers to the dynamic and adaptive nature of an identity, but does not necessarily connote multiplicity.

According to Illia (2010), multiple identities of organizations "relate to a multiplicity of points of view about the collective acknowledgement of who we are as an organization" (p. 328). For example, Glynn (2000) conducted a case study of the dual-identity of a symphony orchestra. Within the organization, the musicians identified with the artistic identity of the organization, while the board members identified with its utilitarian identity. The two conflicting identities eventually led to a musicians' strike. The strike eventually ended, but the tension and conflict between the two identities continued to exist; such tension was unavoidable, because both groups, the musicians and the board members, were essential parts of the organization. Although this case

demonstrated that having more than one identity may be harmful for an organization, this is not always so.

Pratt and Foreman (2000) discussed the potential benefits and costs of having multiple organizational identities. Organizations with multiple identities often have the capacity to meet a wider range of expectations and demands from various stakeholders than do organizations with only one identity. At the same time, however, multiple identities “may lead to role conflict and overload,” which, in turn, may lead to inaction or inconsistent action (Pratt & Foreman, 2000, p. 22). Additionally, organizations with multiple identities may also face the danger of having conflicting identities and “may find themselves in a ‘Catch-22’ situation” (p. 23). The authors suggested that managers can reach an optimal level of identity multiplicity in two ways: by increasing, decreasing, or maintaining the number of identities, or by managing “the relationships among existing identities so that they are either more divergent or more convergent” (p. 24). In other words, managers can either have multiple diverse identities, so that the organization may meet the needs of multiple stakeholders, or they can choose to converge multiple identities into one identity, or fewer identities, to reduce conflicting demands from different groups of stakeholders.

Discussions of the fluidity and multiplicity of organizational identity imply that an organization may either have one single identity, dual identities, or multiple identities. While an organization may have a single identity that is narrowly defined and fixed, it is more likely, and more beneficial, for an organization to have an identity that is both fluid and dynamic, with various claims centered on a theme. It is difficult, if not impossible, to conclude that all organizations have one single identity or that all organizations have

multiple identities. Therefore, in this dissertation, “organizational identity” is used as a generic concept describing a phenomenon, rather than a description of the number of identities of an organization. The exception, of course, is when referring to studies specifically discussing multiple identities, and in the analysis section when describing the identity or identities of the organizations studied.

This section has described the various ways the term *organizational identity* has been defined and provided the definition that is used in this dissertation. This next section discusses the different theoretical perspectives on organizational identity.

The Social Actor Conception of Organizational Identity

In their conception of organizations as social actors, Whetten and Mackey (2002) explained that there are two types of identity: the identity *of* organizations (representing the organization as an entity) and identity *in* organizations (the collective identity of the members, such as employees or staff). While the concept of identity *in* organizations defines identity as perceptions that are shared among an organization’s members, the concept of identity *of* organizations views identity as the institutionalized claims available to members. Organizations are not merely social collectives, they are collective social actors (Whetten, 2006). Viewing organizations as collective social actors underlines the “functional and structural parallels between the identity of organizational actors and individual actors” (p. 221). Moreover, the identity of an organization can be inferred from its self-governance, such as its “identifying commitments,” and its self-actualization, such as its “distinctive behavioral signature” (p. 221).

The social actor concept also implies that organizations can engage in social interaction and possess rights and responsibilities as corporate citizens. This also means

that organizations need to be held accountable for their actions. As a social actor, an organization requires an identity for social interaction and accountability. Whetten and Mackey (2002) clearly distinguished between the identity of individuals and the identity of organizations: “whereas the identity of individuals is socially constructed, organizations themselves are social constructions” (p. 397). Cheney (1992) expressed a similar view of organizations and argued that it is possible to regard companies as corporate actors who can speak on their own behalf, contending that even though messages inherently originate from individuals, messages may present themselves on behalf of organizations.

The social actor conception of organizational identity allows for the analysis of identity at the organizational level as well as at the field level, a fact that is vital to the present study for two reasons. First, it is necessary to recognize that, while it is possible to infer an organization’s identity from assessing its official documents, signs, and symbols, it is equally important to assess members’ views of who they are as an organization, because organizational identity is inherently created and communicated by individuals within an organization. Second, only by employing a social actor conception of organizational identity can one compare identity and reputation, an important goal of this dissertation. As noted above, identity in organizations operates at the individual level, while identity of organizations operates at the organizational level – the same level as reputation.

Three Paradigms of Organizational Identity

Whetten and Godfrey (1998) posited three lenses through which one can approach organizational identity: the functionalist, the interpretive, and the postmodern. A

conversation among prominent organizational identity scholars (Bouchikhi et al., 1998) set forth these three perspectives on organizational identity clearly. The following explains the three perspectives as individual paradigms, as well as their implications for approaches to organizational identity.

Identity scholars taking the *functionalist* lens define organizational identity as institutionalized beliefs that members have about who they are as an organization (Bouchikhi et al., 1998). Organizational identity, viewed from the functionalist perspective, is a social fact and is both observable and able to be manipulated. These assumptions stem from the functionalist view that social phenomena are social facts (Putnam, 1983). Consequently, functionalist scholars assume that there is a true identity to be discovered. Additionally, functionalism presumes that the construct of identity remains relatively stable and constant over time; therefore, while identity is not immutable, it is difficult to change (Whetten & Godfrey, 1998). In terms of approaches to research, functionalists have a proclivity toward positivist methods and attempt to control for the bias of the researchers throughout the research process and favor conclusions that are free from values (Putnam, 1983). Following this tradition, identity researchers favor specification of variables and testing of hypotheses, and are concerned with reliability, validity, and generalizability (Whetten & Godfrey, 1998).

The *interpretivist* perspective stems from the hermeneutic tradition and focuses on the interpretation of meanings that are constantly being negotiated and renegotiated (Cheney, 2000; Guba & Lincoln, 2005; Putnam, 1983). Accordingly, interpretive identity scholars define organizational identity as a set of meanings about “who we are” as an organization that are continuously negotiated and renegotiated (Bouchikhi et al.,

1998). Interpretivists tend to be subjectivists, and therefore see organizational identity as a notion that is socially and symbolically constructed (Whetten & Godfrey, 1998). While functionalists view identity as relatively constant and difficult to change, interpretivists view identity as more unstable and dynamic. In contrast to the functionalist goal of discovering the true identity of organizations, interpretivists aim to describe identity and explain how the identity of an organization came to be. As such, identity researchers taking the interpretivist perspective emphasize the views of the insiders, the actors involved in the negotiation process. A key assumption in interpretivist identity research is the aim to achieve a certain level of agreement on the meanings of identity. Interpretivism typically favors induction rather than deduction, and therefore often prefers qualitative over quantitative methods.

The *postmodern* approach to organizational identity is more difficult to compare to the others in terms of its basic assumptions because postmodernists tend to be suspicious of and challenge assumptions about and understandings of social phenomena. From this perspective, identity is a myth or an illusion (Whetten & Godfrey, 1998). Appropriately, identity scholars who take a postmodern approach define organizational identity as “momentary” and “fragmented” notions that members have about their sense of organizational self (Bouchikhi et al., 1998, p. 38). Organizational identity shifts constantly and is impermanent. Postmodernists also seek to uncover existing power relations by giving voice to those who are silent and pointing out what is absent.

A summary of the three perspectives on organizational identity is provided in Table 1, adopted directly from Bouchikhi et al. (1998). How one defines and studies

organizational identity is dependent on the perspective to which the researcher subscribes.

Table 1

Comparison of Three Perspectives of Organizational Identity

	Functionalist	Interpretive	Postmodern
Central Problem	How organizational identity shapes action and cognitions	How we collectively construct who we are	To problematize identity, often with an eye toward disclosing and disrupting existing power relations
Definition	<ol style="list-style-type: none"> 1. Institutionalized beliefs about who we are 2. Objective dimensions (people, core business, operating principles, org. purpose) 	Continuously renegotiated set of meanings about who we are	Momentary and fragmented reflections about who we take ourselves to be
Key Assumptions	<ol style="list-style-type: none"> 1. Organizational identity is a social fact 2. Organizational identity is observable and manipulable 	<ol style="list-style-type: none"> 1. Human beings have a need for some stability of meaning 2. Identity is a socially constructed phenomenon 3. Social groups strive toward some level of convergence around meanings of identity 	<ol style="list-style-type: none"> 1. Indeterminacy of meaning 2. Identity is an accidental collection of forms clustering in moments of time 3. Identity takes on paradoxical forms 4. Plurality, multiplicity
Purpose of Inquiry	<ol style="list-style-type: none"> 1. Uncover 2. Describe 3. Measure 4. Put to use (manage) 	Discover/disclose the meanings and the meaning structures that are negotiated among organizational members	<ol style="list-style-type: none"> 1. Provocation 2. Reflexivity 3. Give voice to silences 4. Point to absences

Table 1

Continued

	Functionalist	Interpretive	Postmodern
Implications	<ol style="list-style-type: none"> 1. Centrality: core values and beliefs are touted 2. Enduring: hard to change (but not immutable) 3. Distinctiveness: distinctiveness is assumed and managed 	<ol style="list-style-type: none"> 1. Centrality: identity is meanings that members agree are central 2. Enduring: only to the extent that social context affirms the projected identity 3. Distinctiveness: identity derives both from similarity with and differences from 	<ol style="list-style-type: none"> 1. Central identity is constantly shifting (it revolves around decentering the subject) 2. Enduring: identity is impermanent, a subject to be deconstructed and reconstructed 3. Distinctive identity is defined with respect to so many “others” that fragmentation is a condition; distinctiveness is the defining moment
Metaphor	<ol style="list-style-type: none"> 1. Object 2. Asset 	<ol style="list-style-type: none"> 1. Brain: holographic property (identity is distributed) 2. Improvisational theatre 	Collage: juxtaposition of unexpected elements

Note. Table adopted from Bouchikhi et al. (1998).

Research in organizational identity, however, benefits from a combination of all three perspectives. The decision as to which perspective is more appropriate depends on the research purpose as well as the level of current understanding in the area of study. This dissertation, a study of how small firms create identity in an emerging field, makes use of both the interpretivist and the postmodern approaches, with an emphasis on the former. Taking an interpretivist approach has several implications for research design and analysis, and the Method section discusses these in detail. The following section discusses the new media’s role in influencing an organizational identity.

Identity and the News Media

Existing literature has clearly demonstrated the significant role the news media play in communicating, influencing, and creating organizational identity. The news media serve as a mirror, reflecting the identity of an organization. For example, in Glynn's (2000) study of the dual-identity of a symphony orchestra, the division between the artistic and utilitarian identities of the orchestra played out in the press coverage. Elsbach and Kramer's (1996) study of the *Business Week* rankings of schools serves as another example. They found that business school members—faculty, students, and employees—felt threatened by the *Business Week* rankings because the rankings challenged what they thought was central and distinctive about their organization and their status relative to other schools. Members felt threatened even when their school's rankings were high. Similarly, Corley and Gioia's (2004) examination of identity in the wake of a corporate spin-off found that identity ambiguity was triggered by discrepancies between what employees believed their organization was and what was said in the media.

The news media also play an important role in creating and changing organizational identities. Morsing's (1999) case study of a Danish company's identity change process demonstrated that the media served as the central carrier of the organization's new vision and of discourse between the organization and its external environment. The media helped managers and employees to understand and accept their new identity. This new identity was reflected in and enhanced by the news media.

A more recent longitudinal study by Kjærgaard et al. (2011) extended the aforementioned case study. This longitudinal study of the Danish company found that organizational celebrity, resulting from intense and positive media coverage, can

influence the way employees understand their company's identity and the gratification they derive from identification with their company. More importantly, this study found that external forces such as the news media can facilitate identity reconstruction as well as impede future development of a company. Specifically, the persisting celebrity status of the company represented in the media no longer corresponded to the current identity of the company; however, both the media and the employees appeared unwilling to disengage from the celebrity status. Consequently, the increasing gap between the media portrayal of the company and the employee experience of the company resulted in an identity that was widely perceived as ambiguous.

Dutton and Dukerich's (1991) case study of how the Port Authority of New Jersey and New York responded to the issue of homelessness similarly provided empirical evidence of the influence of the news media on organizational identity. The authors found that members' perception of how others perceived them (a construed external image portrayed in the media) influenced how they approached the homelessness issue. A deteriorating image of the organization was an important trigger for action and response on the part of the organization's members. This study illustrated the close link between image and identity.

This section and the previous four have described organizational identity and the role the news media play in influencing an organization's identity. The next few sections turn attention to reputation, a theoretical concept closely related to identity.

Corporate/Organizational Reputation

Carroll (2008a) defined *corporate* or *organizational reputation* as what is generally said about an organization. Deephouse (2000) referred to reputation as “the evaluation of a firm by its stakeholders in terms of their affect, esteem, and knowledge” (p. 1093). Reputation, he contended, is the result of the interaction between a firm and its stakeholders and the information circulated among its stakeholders about the firm and its behavior. Reputation has also been described as stakeholders’ collective judgments about an organization and its achievements and actions (Fombrun, 1990; Fombrun & Shanley, 1996) and has been considered as relatively stable (Fombrun & Shanley, 1996), cumulative over time, and not entirely predictable (Murphy, 2010).

Deephouse (2000) proposed that reputation can be a competitive and strategic resource for firms. His study using a sample of commercial banks found that a positive reputation can increase financial performance. Other scholars also have emphasized reputation as an important asset for organizations because it allows organizations to charge premium prices (Fombrun, 1996; Rindova, Williamson, Petkova, & Sever, 2005), attract applicants, investors, and customers (Fombrun, 1996; Shrivastava et al., 1997), and increase profitability (Roberts & Dowling, 2002).

Dimensions of Reputation

Although reputation scholars have offered varied definitions of reputation, these various definitions generally fall under three dimensions: 1) *prominence*, referring to the level of collective recognition about an organization in its field; 2) *public esteem*, or overall emotional appeal, relating to the public’s affection, trust, and admiration about an organization; and 3) *substantive attributes*, relating to perceptions about an organization’s

qualities (Carroll, 2008a, 2011a). The public must be able to recognize the name of an organization, it must have some feeling toward the organization, and it must be able to associate attributes or descriptions with the organization (Carroll, 2008a). The next section describes the aforementioned three dimensions in more detail.

Rindova et al. (2005) referred to *prominence* as the degree to which an organization obtains large-scale collective recognition. The authors found that an organization's media rankings, certifications of achievement, and affiliation with high-status actors have an influence on its prominence. However, prominence depends on support and recognition from influential third parties, such as the volume of news reports an organization receives from the media (Carroll, 2010).

The second dimension of reputation—*public esteem*—is fundamentally concerned with an organization's ability to earn respect from the public (Carroll, 2011a, 2011b). Public esteem has often been examined in terms of media favorability. Deephouse (2000) referred to media favorability as the “overall evaluation of a firm presented in the media” (p. 1097). The evaluation of a firm was considered favorable when the firm was praised for its actions and unfavorable when it was criticized for its actions. Rindova, Petkova, and Kotha (2007) measured media favorability by examining whether the news media described an organization's actions as having positive or negative implications. In short, public esteem relates to the affective evaluation of an organization's attributes.

Carroll (2009) unpacked media favorability into *focal* media favorability—the overall evaluation of a firm based on the context of a news article—and *peripheral* media favorability—the overall evaluative tone from a stream of news articles, independent of

how the firm is portrayed in a particular news article. He found a significant relationship between firms' public esteem and their focal media favorability.

Carroll (2009) stated that the traditional view of media favorability has been a firm's focal media favorability. Indeed, both of the previously mentioned studies—Deephouse (2000) and Rindova et al. (2007)—examined firms' focal media favorability. The present study follows this traditional approach to media favorability.

The third dimension of reputation involves *substantive attributes*. Scholars have examined the substantive attributes of organizations using Harris Interactive's annual Reputation Quotient (RQ) Index (e.g., Carroll & McCombs, 2003; Gardberg & Fombrun, 2002; Kioussis, Popescu, & Mitrook, 2007). Harris Interactive, a market research company, evaluates the reputation of companies based on six attributes and 20 sub-attributes (Harris Interactive, 2009), listed below in Table 2. A recent study found a relationship between the attributes that the media associated with specific firms and the same attributes in the firms' reputations (Meijer & Kleienhuis, 2006). Put another way, if a person is asked what they think of when they think of a firm, they will mention the attributes that are mentioned in the media.

Table 2

Reputation Attributes Based on Harris Interactive's Reputation Quotient

Attribute	Sub-Attribute
Vision & leadership	Market opportunities
	Excellent leadership
	Clear vision for the future
Financial performance	Outperforms competitors
	Record of profitability
	Low risk investment
	Growth prospects
Social responsibility	Supports good causes
	Environmental responsibility
	Community responsibility
Emotional appeal	Feel good about
	Admire and respect
	Trust
Products & services	High quality
	Innovative
	Value for money
	Stands behind
Workplace environment	Rewards employees fairly
	Good place to work
	Good employees

Note. Adopted from Harris Interactive (2009).

The Reputation Institute, which has worked with Harris Interactive to conduct annual studies of corporate reputation between 1999 and 2005, also has a reputation index similar to Harris Interactive. The Reputation Institute's RepTrak model measures reputation on 23 performance indicators, or sub-attributes, which are grouped into seven categories (Reputation Institute, 2010). RepTrak's seven categories are essentially the same as the six attributes from the RQ Index, with the additional category of governance.

Reputation and the News Media

Carroll and McCombs (2003) proposed that the agenda-setting effect of the news media can also be applied to corporate reputation. The media affect the level of attention paid to a firm, as well as the substantive and affective images people have about the firm.

Images refracted through intermediaries such as the media are often considered to be more credible than projected images because they are created by third parties (Bouchikhi et al., 1998; Carroll, 2008a, 2010; Deephouse & Heugens, 2009). Some contingent conditions, however, may influence the extent of the news media's agenda-setting effect on corporate reputation. These include organizational age and size; placement in a given media format, such as a newspaper; elite status or celebrity status (e.g., of CEOs); and the geographical proximity between the news source and the firm, to name a few.

Additionally, Bouchikhi et al. (1998) contended that reputation is formed in part by the news media. More precisely, reputation is formed by two actors, the firm and its observers, which include intermediaries such as the media. The media, as intermediaries, reflect signals sent out by firms, and transmit, distort, and add information about a firm. For example, a news outlet may decide to run an entire news release as a news story, or it may decide to use a large or only a small part of the news release. Alternatively, it may choose to publish a story to counter the news release. Regardless of how a news outlet decides to use a news release, it can either help or damage an organization's reputation.

Several empirical studies have demonstrated the importance of the news media for building and influencing reputation. For example, Deephouse (2000), who defined *media reputation* as the overall representation of a firm presented in the media, argued that the news media provide an indicator of stakeholders' attitudes and opinions about a firm within a few months of a news story's publication date. Similarly, Carroll (2010) found that the news media play a vital role in influencing public recognition of and attention to a firm and act as a third-party endorser of a firm's public relations efforts.

Specifically, media attention mediates the relationship between a firm's public relations efforts and its prominence in the minds of the public.

The news media may also be regarded as recorders of events and indicators of social evaluation. In addition, the media provide a forum for debate about reputation. For example, Lee and Carroll (in press) investigated the emergence of corporate social responsibility in the news media over a 25-year period. Specifically, they looked at the four dimensions of corporate social responsibility—economic, ethical, legal, and philanthropic—and found that the proportion of these dimensions present in the news media varied over time depending on contemporaneous social values and public expectations. Similarly, Murphy (2010) examined the media reputation of Martha Stewart—both the person and the brand—as a complex system in which changes in one aspect of reputation in the media also influenced the change in another aspect of reputation in the same network. More importantly, she found that the media's worldview is largely immune to outside attempts to influence and shape it.

The influence of the news media on a firm's reputation, however, is contingent on various factors such as the firm's size and age, the proximity of the news source to the firm, and the placement of news items in a newspaper (Carroll & McCombs, 2003). Most recently, Einwiller, Carroll, and Korn (2010) examined the contingencies of media dependency and found that stakeholders are more likely to rely on the news media for reputation dimensions which are difficult to observe directly and for which the news media are the main source of information. One such dimension is an organization's social responsibility. It is difficult for individuals to experience directly whether an organization is behaving responsibly, and thus individuals often have to rely on third

parties, such as the news media, to gather information about whether an organization is being socially responsible. As the literature reviewed in this section demonstrates, the news media play an important part in recording, evaluating, and influencing reputation.

The Interrelationship Between Identity and Reputation

The discussion of identity and reputation thus far has demonstrated that the two concepts provide different views of the organization. It has also shown that *image* is a closely related term in that it is difficult to provide a comprehensive discussion of identity and reputation without acknowledging image. Therefore, before proceeding to the interrelationship between organizational identity and reputation, it is necessary first to review how previous literature has used *image* in relation to identity and reputation.

Organizational Image

Carroll (2008b) defined *organizational image* as people's impressions of an organization or impressions that organizations want to convey to the public. He stated that there are four types of images: 1) *projected images* are those emitted by an organization; 2) *perceived images* are perceptions that insiders or outsiders have of an organization; 3) *refracted images* are passed through third parties or intermediaries, such as the news media; and 4) *defining images* are those that are central to the organization. Carroll also noted that scholars in the past have used the two terms—corporate reputation and image—interchangeably. Gioia et al. (2000) described reputation as a type of image; Park and Berger (2004) equated image with reputation and adopted Newsom, Scott, and Turk's (1989, p. 364) definition of image: "the impression of a person, company, or institution that is held by one or more publics."

Similarly, image and identity are closely intertwined. Image functions as a destabilizing force on identity, “frequently requiring members to revisit and reconstruct their organizational sense of self” (Gioia et al., 2000, p. 67). Gioia et al.’s discussion of the adaptive instability of organizational identity compared different forms of image, such as construed external image, corporate identity, and reputation. Other scholars have described image as a type of identity or vice versa. Dutton et al. (1994) distinguished between two kinds of image, construed external image and perceived organizational identity, and defined *perceived organizational identity* as what members believe central, enduring, and distinctive about the organization. *Construed external image* can be defined as perceptions that organizational members have about how outsiders perceive the organization (e.g., Dutton & Dukerich, 1991; Dutton, Dukerich, & Harquail, 1994). Some scholars (e.g., Alvesson, 1990) have viewed corporate identity as images that organizations want to communicate to constituents that may or may not represent reality. Alternatively, Bouchikhi et al. (1998) defined corporate identity as the external aspects of an organization’s identity, including visual presentations and symbolic expressions.

Regardless of which term is used, scholars have agreed that it is beneficial for an organization to align how it perceives itself (e.g., defining images, perceived organizational identity or, simply, organizational identity) with how others perceive the organization (e.g., reputation, construed external image, perceived images, perceived organizational identity). Albert and Whetten (1985) warned that discrepancies between the two views can be harmful to the health of an organization. Dutton et al.’s (1994) study found that the more attractive both the internal and external perceptions of an organization are to its members, the greater the members’ identification with the

organization, which leads to more cooperative behavior among people inside the organization, more competitive behavior toward those outside of the organization, and more organizational citizenship behavior. Similarly, Corley and Gioia's (2004) study found that discrepancies between the two views resulted in a state of identity ambiguity, in which "organizational members are in doubt about who they are as an organization" (p. 199).

Based on the above discussion, it is appropriate to say that image can be used to describe various forms of both identity and reputation. Even though image is not a focal construct in this dissertation, it is important to note that image is inherently incorporated in the discussion of identity and reputation.

Interplay Between Identity and Reputation

In this dissertation, organizational identity refers to the central, enduring, and distinctive attributes an organization uses to describe itself, both in terms of its self-perception and in its self-expression. In contrast, organizational or corporate reputation refers to perceptions that others have about the organization. A simple differentiation between identity and reputation may be that organizational identity relates to perceptions originating from within the organization, whereas reputation is based from perceptions existing outside of the organization. Scholars have directed our attention, however, to a blurring of the line between the internal and external aspects of an organization. Cheney and Christensen (2001) argued that internal and external communications are closely intertwined. Specifically, they pointed out that messages are constructed for more than one purpose and aimed at more than one audience. In addition, it is difficult to distinguish internal stakeholders from external stakeholders. For example, a company

may have customers who may also be investors, or it may have employees who are also customers. Bouchikhi et al. (1998) expressed a similar sentiment when they contended that there is a breakdown between the internal and external aspects of organizations. Thus far, the literature review demonstrates that identity and reputation are products of both internal and external forces and of the continuous interaction between these forces. It is important to keep this in mind when discussing research on identity and reputation, as it may influence how a researcher chooses to view and empirically test identity and reputation.

Carroll (2008a) differentiated between identity and reputation by defining organizational identity as what the organization and its members say, and corporate reputation as what others say about the organization. Bouchikhi et al. (1998) and Whetten and Mackey (2002) more explicitly tied the two concepts together. According to Bouchikhi and colleagues, corporate reputation and organizational identity are inherently related. Corporate reputation is the evaluation and assessment of organizational identity, and organizational identity incorporates reputational feedback. Viewed in this way, they depend on and feed off each other. Whetten and Mackey contended that reputation is a form of feedback received by an organization from stakeholders regarding the credibility of its identity claims. Thus, organizational identity claims can be regarded as autobiographical, while reputation assessments can be viewed as biographical.

An organization's attempts to form an organizational identity and to build corporate reputation, particularly in an emerging field, can be explained and described by

institutional theory. The next section provides the background on institutional theory, followed by a discussion of how institutional theory informs both identity and reputation.

Institutional Theory

According to institutional theory, organizations often look alike because of institutional pressures on them to become isomorphic with other organizations in the same organizational field (DiMaggio & Powell, 1983). An *organizational field* refers to an aggregate of organizations that together constitute a recognized area of institutional life, including suppliers, customers, competitors, and regulatory bodies. *Isomorphism* is the process of homogenization which pressures organizations to resemble other organizations facing similar environmental constraints (Meyer & Rowan, 1977). Organizational behaviors may be influenced by isomorphic pressures from social expectations and/or from regulatory agencies, professional associations, or accrediting organizations (Greenwood & Hinings, 1996). The goal of becoming isomorphic is to be seen as legitimate, and most importantly, to survive.

DiMaggio and Powell (1983) identified three isomorphic processes through which an organization or an organizational field may become institutionalized: the coercive, the mimetic, and the normative. *Coercive isomorphism* results mainly from political pressure. Organizations are pressured to respond to the demands of external organizations on which they depend for recognition and resources (e.g., regulatory guidelines and laws). *Mimetic isomorphism* describes the tendency of organizations to imitate other organizations that are viewed as legitimate and successful. Finally, *normative isomorphism* is associated with professionalization, either through the growth

or elaboration of professional networks such as professional or trade organizations, or through formal legitimization and education by university specialists.

The institutional literature demonstrates the significance of the three isomorphic mechanisms on the homogenization of organizations. For example, Heugens and Landers's (2009) meta-analysis of the institutional literature found that the levels of isomorphic pressure (coercive, mimetic, and normative) are positively related to the level of isomorphism in a particular field. Another important finding of the study was that the adoption of isomorphic templates positively related to the symbolic and substantive performance of organizations. Additionally, conformity to institutional norms enhanced the symbolic performance of organizations. In short, conformity to the three isomorphic pressures helps an organization obtain legitimacy. Legitimacy, then, is an important outcome in institutional theory.

Scholars have pointed out that legitimization is closely related to institutionalization (Deephouse & Suchman, 2008; Lawrence, Winn, & Jennings, 2001), which involves "the process by which social processes, obligations, or actualities, come to take a rulelike status in social thought and action" (Meyer & Rowan, 1977, p. 341). Suchman (1995) described legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (p. 574). There are various sources of legitimacy, including the state, which has "standing and license"; intellectuals, who have "collective authority" (Meyer & Scott, 1983, pp. 201–202); society-at-large; and the media (Deephouse & Suchman, 2008). As a source of legitimacy, the media fall between legitimacy-granting authorities and society-at-large. The presence and positive treatment

of an organization in media content can grant a form of legitimacy to that organization. At the same time, such media content must be considered newsworthy as well as acceptable by the audience in society.

Mass communication scholars have highlighted the legitimating function of the media. McCombs and Shaw (1993) inferred the media's legitimating function, noting that the key concept of status conferral can be incorporated within the major premises of the agenda-setting theory (see also McCombs, 2005). Agenda-setting theory, in the simplest terms, describes the influence of the media agenda on the public agenda (McCombs & Shaw, 1972). The status-conferral function of certain media was first introduced by Lazarsfeld and Merton in 1948 and describes the process through which "the news media bestow prestige and enhance the authority of individuals and groups by legitimizing their status" (p. 101). Put another way, when the media provide coverage of specific objects such as organizations, especially in favorable ways, the media also confer status, and by extension legitimacy, upon these objects.

Relation to Identity and Reputation

According to Whetten and Mackey (2002), institutional theory informs organizational identity in two ways. First, as noted by Meyer and Rowan (1977), organizations are created from existing social institutions. Similarly, Aldrich (1999) contended that organizations are created based on organizing recipes that are socially recognized and accepted. Second, the institutional perspective views organizations as being both formed from social institutions and becoming institutions themselves. Taking these two institutional assumptions into consideration, Whetten and Mackey concluded that "the institutionalization process within organizations is centered in an organization's

inherent need for uniqueness” (p. 399). This uniqueness is based on both similarity and distinctiveness. As Cheney and Vebbert (1987) observed, the challenge of organizations is to develop an identity that is both distinct from others “while at the same time being recognized as part of the cultural ‘crowd’” (p. 185). In the same vein, Pedersen and Dobbin (2006) argued that organizations aim to become a recognized member of a group as well as a distinct member within that particular group.

Several scholars have also made the connection between an organization’s reputation and institutional theory. Wright and Rwabizambaga (2006) argued that certain codes of conduct are adopted by organizations for the purpose of showing positive credentials, which assists the organization in strengthening its reputation. In other words, conformity to external institutional pressures can help an organization enhance its reputation. Separately, Staw and Epstein (2000) argued that when faced with institutional pressures, whether positive or negative, organizations should consider the pursuit of reputation as a way of gaining organizational legitimacy. For example, they proposed that by adopting popular management techniques such as total quality management, organizations may be able to improve their reputations.

Furthermore, there is a close link between the association component of reputation (Carroll, 2008a, 2011b) and institutional theory, particularly in relation to isomorphic pressures. For example, in terms of coercive isomorphism, organizations are often pressured to respond to external demands, such as adopting certain regulatory guidelines. By extension, an organization’s association with certain regulatory guidelines signals to external institutions that it subscribes to existing social norms. This same logic of association also applies to normative isomorphism.

This chapter has reviewed relevant literature on organizational identity, corporate reputation, and institutional theory, as well as discussing the relationship among these theoretical frameworks. The next chapter provides the background on small business and emerging fields. It provides a definition of “small” relevant to this dissertation, reviews the limited body of literature that has in some way addressed how small firms practice public relations, and describes the difficulties small firms in an emerging field may face.

CHAPTER 3

BACKGROUND ON SMALL BUSINESSES AND EMERGING FIELDS

To date, the public relations literature has been biased toward large organizations to the exclusion of small organizations, both in theoretical studies (e.g., Cancel, Cameron, Sallot, & Mitrook, 1997; Grunig, Grunig, & Dozier, 2002; Grunig & Hunt, 1984) and in empirical ones (e.g., David, Kline, & Dai, 2005; Heath & Douglas, 1995; Hung, 2005). Several public relations scholars have pointed this out and have emphasized the need to address this deficiency (e.g., Evatt, Ruiz, & Triplett, 2005; Gray, Davis, & Blanchard, 2004). Others have demonstrated that public relations activities are equally relevant and crucial for small businesses as for large ones (e.g., Cole, 1989; Evatt et al., 2005; Goldberg, Cohen, & Fiegenbaum, 2003; Otterbourg, 1966). In fact, the study of how small businesses practice public relations may be more revealing than examining the public relations practices of large corporations. Managers at small organizations are more likely than their counterparts who work at large organizations to “view public relations as holistic and inclusive of all communication functions” (Evatt et al., 2005, p. 13).

The main purpose of the present chapter is to provide background information on small businesses. It begins by defining small businesses and comparing small and large businesses. It then discusses the unique public relations needs of small firms and

concludes with a section on the particular challenges small businesses face in emerging fields.

Defining Small Businesses

A small business can be defined in various ways: by its structure, such as the number of employees (Kohn, 1997; Vinten, 1999); by its financial performance (Calof, 1993); by its age (Feindt, Jeffcoate, & Chappell, 2002); or by comparison with other similar organizations in its field or industry (Alvarez & Barney, 2002; Street & Cameron, 2007). In the small business literature, an oft-cited definition is that of the United States Small Business Administration (SBA). The SBA (2009a) defines a small business as one which is independently owned and operated, is not dominant in its field of operation, and employs fewer than 500 employees.

Although the SBA places a 500-person cap on the number of employees in their definition of a small business, an alternative criterion may be more appropriate. According to Headd and Kirchhoff (2009), data from the U.S. Census Bureau's Statistics of U.S. Businesses show that the median employer firm size is four employees, and the average firm size is 23 employees. Additionally, Evatt et al. (2005) noted that many government agencies and researchers define a small organization as one having fewer than 100 employees. Adapting definitions in the literature and taking the U.S. Census Bureau's data into consideration, this dissertation defines a small business as one which is not dominant in its field of operation and which has fewer than 100 employees. This number of employees is large enough to encompass the U.S. SBA's definition as well as the average firm size based on the Census Bureau's statistics.

Small firms play an important role in society for three main reasons. First, according to the U.S. Department of Commerce, small firms represent 99.7% of all U.S. employer firms (U.S. Small Business Administration, 2009b). Second, and perhaps most relevant in the current economic situation, small businesses often create the most jobs during economic recessions and play a significant role in the national recovery from recessions (U.S. Small Business Administration, 2009c). Finally, small businesses are an important mechanism by which many young professionals enter the workforce (Acs, 1999; Carolsson, 1999). This last reason is especially important for public relations scholarship because it implies that many young public relations professionals enter the workforce by first working in small businesses. A lack of understanding about how public relations is practiced in small businesses may mean that young public relations professionals are inadequately trained for practicing public relations in a small business environment.

Small businesses are unique because they have different structures, different cultures, and different goals than those of large businesses (Carolsson, 1999; Otterbourg, 1966). They are also often constrained by their size and lack of resources, and therefore have to be more flexible, creative, and efficient than their larger counterparts (Goldberg et al., 2003; Kalantaridis, 2004; Smith, 2007). Furthermore, small businesses play a different role in society than do large firms. For example, Acs (1999) found that small firms are more likely to explore new technological areas in less crowded fields and are more focused on community building compared to their larger counterparts.

These differences between large and small firms mean that public relations practices in the small business environment are likely to differ from those in the large

corporate environment. The subsequent sections first describe some of the ways in which small firms may be distinguished from large ones, and then delineate how public relations practices in small firms may vary from public relations practices in large firms.

Comparing Small Businesses to Large Ones

Based on the existing literature on small businesses, small and large firms may be distinguished along three different aspects: those of legitimacy, strategic flexibility, and relationship-building. As mentioned in the previous chapter, legitimacy can be defined as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (Suchman, 1995, p. 574). Applying this definition to organizations, an organization may be considered legitimate when other social actors know what outcomes and activities to expect from it. Small firms have difficulty obtaining legitimacy because they are often unable to provide evidence that they can successfully compete with larger, more-established businesses (Weigelt & Camerer, 1988). More importantly, the ability to compete with larger firms leads to the survival, and ultimately, the growth of the firm. Small businesses often have to make additional efforts to demonstrate that they are reliable, trustworthy, and competitive (Chen & Hambrick, 1995). In short, it is difficult for small firms to obtain trust without legitimacy.

Although small businesses may be at a disadvantage when it comes to legitimacy, their ability to be flexible in their strategic approach is an important competitive advantage over their larger counterparts (Chen & Hambrick, 1995; Diez-Vial, 2009; Kalantaridis, 2004). For example, Chen and Hambrick’s (1995) study of the competitive action and response of small and large airlines found that small airlines had “a greater

propensity for action, faster action execution, and less action visibility than their larger rivals” (p. 470). Chen and Hambrick attributed this difference in response to the structural complexity of larger airlines, which can constrain information-processing capability and speed of competition action. Other scholars have also noted that large firms are relatively ineffective compared to small businesses due to decision-making delays, coordination problems (Pratten, 1991), and their bureaucratic nature (Carolsson, 1999).

Finally, Shan (1990) pointed out that small firms are more likely to form cooperative arrangements, such as networks and alliances, than their larger counterparts. Participation in cooperative arrangements can provide small firms access to resources and help them gain competitive advantages such as reduced reliance on larger corporations and increased ability to compete in the marketplace. These benefits—access to resources and competitive advantages— are perhaps why the small business literature often focuses on external rather than internal relationships (e.g., Baum, Calabrese, & Silverman, 2000; Malecki & Tootle, 1996).

The Public Relations Needs of Small Businesses

The literature addressing the public relations needs of small businesses is negligible. Scholars have agreed, however, that public relations is just as important, if not more so, for small firms than for large ones. What studies do exist demonstrate that the practice of public relations in small businesses differs in many ways from public relations in large firms. As Lepoutre and Heene (2006) summed up, “Small firms are not little big firms.” Small firms cannot merely adopt the public relations practices of large

companies. The present section reviews the few studies that have linked public relations and small businesses.

Otterbourg (1966) provided an early look at the practice of public relations in small companies. Specifically, Otterbourg cautioned small firms not to imitate the public relations practices of big companies because small firms do not have the human and financial resources equivalent to those of big companies. Otterbourg offered some advice on how public relations should be practiced in small companies, but did not provide a formal model for the practice of public relations in small firms.

Evatt et al. (2005) performed one of the most comprehensive studies to date on how small organizations practice public relations, conducting surveys, focus groups, in-depth interviews, and Q-studies with managers at small organizations, including nonprofits, for-profits, governments, and associations. Their study found that small organizations tend to focus more on relationship building rather than on publicity seeking. Specifically, communication in small organizations focused on direct, in-person, and more informal communication and relied less on indirect channels such as the mass media. The study also showed that the responsibility of public relations usually rested on the shoulders of the CEO when the organization had fewer than 20 employees. When an organization's size increased to more than 20 employees, the responsibility shifted to an individual other than the CEO.

Gray et al.'s (2004) study of small firms found that more than 90% of the firms in their sample practiced some type of public relations. More importantly, firms that practiced public relations performed better than firms that did not. Cole (1989) also

provided an explicit link between public relations and small firms, contending that public relations can help small businesses improve their public image and status.

Finally, Mohan-Neill (1995) made an indirect connection between public relations and small businesses. Mohan-Neill examined the relationship between organizational age and size and the organization's environmental scanning activities (an important public relations function), and found that size mattered: small firms differed from large firms in how they sought out and collected information about their environment. This study is important because Mohan-Neill did not mention public relations in the study, which suggests that firms undertake public relations activities even though they may not refer to the activities as such. While this may be a positive indication that small firms may practice public relations without recognizing their activities as such, there is also the risk of businesses disregarding public relations because they cannot recognize what constitute public relations activities.

This section has delineated public relations needs in a small business environment. Small businesses may need to meet additional public relations needs when they are operating in emerging fields. The next section discusses the particular challenges small businesses may face in emerging fields.

Small Businesses in Emerging Fields

There is scant literature on small businesses in emerging fields and none that has addressed how small businesses practice public relations in emerging fields. Scholars have, however, examined emerging industries and fields. While the definitions of *industry* and *field* differ somewhat, they are also similar in many ways. Clegg, Rhodes, and Kornberger (2007) defined an *industry* as the knowledge structures that are shared

among key stakeholders which “provide the inter-organizational dimension of identity against which individual firms can define themselves” (p. 498). An industry matures by moving from unstable, incomplete, and disjointed conditions to more coherent conditions (Rosa, Porac, Runser-Spanjol, & Saxon, 1996). This is similar to Meyer and Rowan’s (1977) description of the institutionalization of a *field*, in which “social processes, obligations, or actualities, come to take a rulelike status in social thought and action” (p. 341). Thus, studies of emerging industries can improve our understanding of emerging fields. In addition, although a search for studies examining small businesses in emerging fields yielded no results, there are studies that have looked at new firms in the context of emerging fields; these studies are applicable because new firms are often small, and therefore small and new firms share many of the same characteristics.

Clegg et al. (2007) examined the formation of organizational identity in the emerging industry of business coaching in Australia. The authors argued that the construction of a legitimate organizational identity can be explained by the relationship between the stability of an organization’s identity over time and the location of an organization’s identity in relation to other firms in terms of both similarity and differentiation. Clegg et al.’s study suggests that it is difficult for small firms operating in an emerging industry to establish a sense of organizational identity because the industry is still ambiguous and poorly understood. As Albert and Whetten (1985) noted, organizational identity is particularly salient during certain stages of an organization’s life cycle, one being the stage during which there is “a change in collective status” (p. 274). The emergence of a field can be considered such a change. Small firms operating in an emerging field, therefore, may face the difficulty of establishing a clear identity,

and by extension, of obtaining legitimacy. While Clegg et al. (2007) pointed out challenges and opportunities facing firms operating in an emerging industry, they failed to consider an important mechanism of identity formation: the incorporation of reputation feedback. This is especially relevant for their discussion of the stability of an organization's identity over time, because an organization's identity is closely related to and is often influenced by reputation.

In their study of how new firms in emerging fields build reputation, Rindova, Petkova, and Kotha (2007) posited that the challenge is two-pronged: not only do firms have to legitimize their own existence, they also have to legitimize the field in which they operate, because in such contexts, stakeholders may be uncertain of the new types of activities, products, and business models within the new field. Similarly, Petkova, Rindova, and Gupta (2008) examined the reputation-building activities of new ventures and found that new firms accumulate one of two types of reputation: “generalized reputation with large groups of distant stakeholders or local reputation with a small group of local stakeholders” (p. 321). Petkova et al. observed that generalized reputation may be accumulated through symbolic activities—such as attending tradeshow and conventions and publishing papers, books, and industry newsletters—and investments in human and social capital, whereas local reputation may be accumulated through investments in product quality and close relationships with customers. *Generalized reputation* refers to reputation accumulated with a large group of distant stakeholders who have no direct experience with the firms; *local reputation* refers to reputation accumulated with a small group of local stakeholders, such as customers, who have direct experiences with the firms. Together, these two studies provide a clear understanding of

the reputation-building activities of new firms. Like Clegg et al. (2007), however, Rindova et al. (2007) and Petkova et al. (2008) did not provide a comprehensive picture of an organization. Clegg et al. addressed identity without recognizing the role of reputation in constructing an organization's identity, whereas the discussion of reputation in Rindova et al. and Petkova et al. failed to make any reference to identity. As stated in the previous chapter, reputation is a form of stakeholder feedback about the credibility of an organization's identity claims (Whetten & Mackey, 2002). Therefore, studies that focus exclusively on either identity or reputation may not provide an adequate and comprehensive understanding of an organization and its public relations practices.

In their study of emerging industries, Deeds, Mang, and Frandsen (2004) demonstrated that the legitimacy of firms and of industries has an influence on the flow of resources into new technology ventures. They also noted the importance of association, a core component of reputation. Carroll (2008a, 2011b) describes *association* as firms' development of reputation by linking to larger social or public issues, being involved with established organizations, and becoming affiliated with reputable individuals. Deeds et al. (2004) found that biotechnology industry ventures often use the association mechanism by identifying themselves as funded by or based on research from a university. The quality and reputation often associated with academic institutions help improve the reputation and legitimacy of such firms. Although Deeds et al. provide an important insight for this dissertation by illustrating the importance of association as a mechanism for building reputation, they addressed only one consequence of legitimacy, access to resources. Further, Deeds et al. did not acknowledge the role of

identity and only briefly touched upon the role of reputation in helping organizations gain legitimacy.

Finally, Aldrich and Fiol (1994) showed that new organizations operating in emerging industries face many constraints, the most crucial of which is the lack of legitimacy. New firms lack familiarity and credibility, and thus may have difficulty accessing capital, markets, and governmental protection. The authors suggested that new firms need to develop trusting relationships with key stakeholders, cope with opposing industries, and win institutional support and approval. Aldrich and Fiol's discussion of ways in which entrepreneurial firms may gain legitimacy focused on general management strategies, such as communicating internally consistent stories, mobilizing collective action, promoting activity through third-party actors, negotiating and compromising with other fields, and creating linkages with educational establishments. It is possible that these management activities are considered important public relations functions in small firms. As Goldberg et al.'s (2003) study suggested, public relations activities are often incorporated into day-to-day management activities in small firms. Further, public relations activities may also be important mechanisms by which small firms establish identity and build reputation, because legitimacy can often be obtained by establishing a socially valued identity and favorable reputation (Cheney & Vibbert, 1987; Pedersen & Dobbin, 2006; Staw & Epstein, 2000; Whetten & Mackey, 2002).

Summary

As this chapter has illustrated, public relations theory and research have been biased toward large businesses. Consequently, the scholarship lacks a clear understanding of how public relations are practiced in the small business environment.

This deficiency can be addressed by examining how small businesses practice public relations, particularly in regard to identity and reputation management, in an emerging field.

The structure, culture, and goals of small businesses often differ from those of large firms (Carolsson, 1999). Small firms, then, cannot merely copy the public relations practices of large companies (Lepoutre & Heene, 2006; Otterbourg, 1966). Further, small businesses are worthy of examination because they play an important role in American society (Acs, 1999; Carolsson, 1999; U.S. Small Business Administration, 2009b, 2009c), and small firms view public relations as a holistic and inclusive communication function (Evatt et al., 2005).

Finally, this dissertation examines public relations practices of small businesses in an emerging field because small businesses are often entrepreneurial, and therefore, tend to operate in emerging fields. Moreover, small firms essentially face two levels of challenges in establishing identity and building reputation, and by extension, legitimacy (e.g., Clegg et al., 2007; Rindova et al., 2007). Consequently, small firms operating in an emerging field may have to be more creative and strategic relative to their larger counterparts to successfully obtain legitimacy through establishing an identity and building a favorable reputation.

The next chapter proposes the research questions to be answered in this dissertation and introduces the emerging field of nanotechnology as the context for exploring how small firms in an emerging field establish identity and build reputation. The chapter also describes the methodologies used, as well as the data analysis procedures, and discusses the limitations associated with each methodology.

CHAPTER 4

RESEARCH QUESTIONS AND METHODS

The previous two chapters have shown that identity and reputation are important to public relations practices. Despite the abundance of theoretical and empirical studies on identity and reputation, the public relations literature has yet to examine identity and reputation management in small businesses, particularly in an emerging field. Identity and reputation management activities are essentially public relations activities (Cheney, 1992; Cheney & Christensen, 2001; Cheney & Vibbert, 1987). As mentioned in chapter 3, examining small firms' public relations activities may be more revealing than examining those of larger corporations. In larger corporations, public relations functions are more diversified and specialized, whereas in smaller firms, public relations functions are more inclusive of various communication activities.

Furthermore, small firms operating in an emerging field face two levels of challenges in establishing identity and building reputation: the need to legitimize their own identity and reputation, and the need to legitimize the identity and reputation of the emerging field in which they operate (Aldrich & Fiol, 1994; Clegg, Rhodes, & Kornberger, 2007; Rindova, Petkova, & Kotha, 2007). Small firms must face these two challenges while at the same time striving to overcome the challenges of limited human and financial resources (Goldberg et al., 2003; Kalantaridis, 2004). Small firms often have neither the staff nor the funds to do everything they would like to do. Relative to

larger corporations, small firms operating in an emerging field may have to be more creative and strategic to successfully establish an identity and build a favorable reputation. In addition, researchers have rarely examined identity and reputation simultaneously, even though the two are closely related. This dissertation's advantage over existing studies is its simultaneous examination of both identity and reputation.

Research Questions

The first set of research questions seeks to gain an understanding of how small firms create identity and build reputation. The first part of the research question addresses the ways in which small firms create and communicate identity in an emerging field; the second part addresses the reputation management activities of small firms in an emerging field.

RQ1a: How do small firms create and communicate their organizational identity in an emerging field?

RQ1b: How do small firms build and manage their corporate reputation in an emerging field?

As chapter 3 described, although small firms are often constrained by their lack of resources, their ability to be flexible in their strategic action gives them some advantages over their larger counterparts (e.g., Goldberg et al., 2003; Kalantaridis, 2004; Smith, 2007). Therefore, the second set of research questions focuses on the challenges and opportunities small firms face in creating identity and building reputation in an emerging field.

RQ2a: What challenges and opportunities do small firms face in creating and communicating their organizational identity in an emerging field?

RQ2b: What challenges and opportunities do small firms face in building and managing their corporate reputation in an emerging field?

Albert and Whetten (1985) contended that information about organizational identity is often disseminated via corporate documents such as annual reports and press releases. Organizations must establish an identity that is similar to, yet distinct from, that of existing organizations both within and outside of the field in which they operate in order to be recognized as legitimate by external social institutions (Cheney & Vibbert, 1987; Pedersen & Dobbin, 2006; Whetten & Mackey, 2002). As such, organizations operating in an emerging field may emphasize aspects of their identity that are similar to other organizations, to help them fit in with existing institutions, while highlighting other aspects that distinguish them from other organizations. Identity studies have often examined organizational documents to infer an organization's identity (e.g., Corley & Gioia, 2004; Glynn, 2000). Therefore, this dissertation also seeks to explore how small firms communicate their identity in their corporate documents.

RQ3: What identity aspects do small firms express and communicate in their corporate materials?

While organizational identity can be inferred from official organizational documents, organizational reputation can be inferred from media content about the organization (Bouchikhi et al., 1998; Carroll & McCombs, 2003; Deephouse, 2000; Murphy, 2010). As Evatt et al. (2005) demonstrated, however, small organizations are less likely to communicate messages through the mass media. Therefore, it may be postulated that small firms are more prominent in niche publications such as trade publications and science magazines rather than in general news media. The examination

of small firms' media reputations, then, needs to include both mainstream news publications and niche publications.

RQ4a: How are small firms' reputations portrayed in mainstream news media and in specialized media such as science and trade magazines?

Although reputation scholars have proposed and empirically tested the three reputation dimensions, these dimensions—prominence, esteem, and a series of attributes—have most often been applied to large corporations (e.g., Abraham, Friedman, Khan, & Skolnik, 2008; Apéria, Brønn, & Schultz, 2004; Carroll, 2009, 2011).

Considering the uniqueness of small businesses, it is possible that existing reputation attributes may not be appropriate for measuring the reputation of small businesses.

Alternatively, it is possible that for small businesses, certain reputational attributes are emphasized over others. This prompts the following research question:

RQ4b: How do existing reputation dimensions—prominence, esteem, and attributes— apply to small firms?

Finally, one of the goals of this dissertation is to examine identity and reputation simultaneously. The previous chapter discussed how identity and reputation are closely related and often feed off one another. Therefore, the last research question seeks to discover whether there is a relationship between identity and reputation for small businesses.

RQ5: What is the relationship, if any, between the identity aspects of small firms emphasized in their corporate content and their reputation as portrayed in the media?

It is necessary to identify a specific field for conducting this research because specifying a field allows for the identification of factors, such as government endorsement, industry credibility, and competition, that may affect how a small business within a particular field practices public relations. This dissertation seeks to answer the preceding research questions using the context of nanotechnology as an emerging field.

The Context of Nanotechnology as an Emerging Field

Nanotechnology is defined by the National Nanotechnology Initiative (NNI) as the understanding and manipulation of matter at scales of roughly 1 to 100 nanometers, or one-billionth of a meter. The NNI was launched by the United States government in 2000 to encourage research on and development of nanotechnology. At the end of 2003, Congress approved, and the president signed, the Twenty-First Century Nanotechnology Research Development Act (Stephens, 2005). Since the approval of the Nanotechnology Act, the NNI budget has steadily increased. In 2008, the NNI budget request for nanotechnology research and development was estimated at \$1.44 billion (NNI, 2008).

The growth in government and corporate investment in recent years can be attributed to the promising potential of nanotechnology applications. According to industry experts at the 2003 NNI Workshop, within the next decade nearly half of all new products and services, such as handheld computer devices, cancer treatments, renewable energy sources, water filters that remove viruses and contaminants, and lightweight car components, could involve nanotechnology (Roco & Bainbridge, 2007). In addition, nanotechnology is unique in comparison to other fields of science because it crosses many disciplines, including physics, chemistry, biology, material science, and engineering (Roco & Bainbridge, 2007).

Evidence of the three isomorphic pressures—coercive, mimetic, and normative—in the field of nanotechnology supports categorizing it as an emerging field. In recent years, outspoken nonprofit groups such as the ETC Group (Action Group on Erosion, Technology, and Concentration), an organization that supports the socially responsible development of technologies, have called for better risk management in the use of nanotechnology in producing commercial products such as cosmetics, drugs, and clothing (informal pressure). Governmental bodies such as the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA) have also started to regulate the use of nanotechnology (formal pressure). For example, in 2009, the FDA formed a nanotechnology task force to ensure that nanomaterials used in FDA-regulated products are safe (FDA, 2010). The involvement of nonprofit groups and regulatory bodies provides an example of coercive isomorphism. Mimetic isomorphism is illustrated by the increasing number of companies spun off from universities for the purpose of commercializing nanotechnology; examples include Nanoco (University of Manchester), Xintek (University of North Carolina and Duke University), and Nano-Terra (Harvard University).

There are also examples of the two sources of normative isomorphism in nanotechnology. The creation of research and educational centers in various university campuses, such as the College of Nanoscale Science and Engineering of the University at Albany is an example of legitimization by universities as a source of normative isomorphism. Additionally, the growth of professional associations as a source of normative isomorphism can be seen in development of the International Association of

Nanotechnology, a nonprofit professional association, and the NanoBusiness Alliance, an industry association for corporations, start-ups, and other stakeholders.

Nanotechnology as an emerging field serves as the context and focus for the current study. This dissertation uses a mixed-methods approach, conducting interviews with managers who hold the highest communication position at small nanotechnology firms and with other persons who are familiar with or work with small nanotechnology firms, as well as analyzing content relevant to these firms' identity and reputation. Managers holding the highest communication position can include chief executive officers, founders, vice presidents of marketing and sales, or other executives who are primarily responsible for overseeing the external communication of a firm, or who most often speak to external audiences about or on behalf of the firm. Before detailing the methodological approach, however, it is necessary to first acknowledge the interconnectedness between individuals and organizations. The next section explicates the close relations between agency and structure, and discusses the relevancy of these concepts to this dissertation.

Giddens' Structuration Theory

Giddens' (1984) structuration theory emphasizes the interplay between agency (the individual actors) and structure (the society, or in this case, the organization). Social phenomena, such as organizational identity and reputation, are products of agency as well as structure, rather than merely of either agency or structure. Agency cannot exist without structure, and structure cannot exist without agency. Actors monitor the social and physical aspects of their contexts (structure) and base their actions on them; without individual actors, however, structure cannot exist. As Giddens described the process,

individual agents draw on social structures in their actions while at the same time using use these actions to continuously produce and reproduce social structures. More recently, scholars have emphasized the importance of both agency and structure by showing that institutions can both constrain and enable social action (Green, Li, & Nohria, 2009).

Structuration theory is fundamental to understanding the present study because this study integrates agency and structure. Exploring the reputation and identity *of* organizations examines the two constructs at the organizational level. At the same time, however, this study employs the method of interviewing individuals to gain an understanding of identity and reputation *in* the organization. Therefore, while this study seeks to examine identity and reputation at the organizational level, it also takes into account the involvement of individual actors in helping to construct and understand a fuller picture of how an organization creates identity and builds reputation. An important challenge for this study was how to analyze interviews with individuals while keeping the organization and the larger institution (the field of nanotechnology) in view. As DeVault and McCoy (2006) have pointed out, this is a challenge that researchers who use interviews to investigate ruling relations must overcome. Researchers must constantly keep in mind that the purpose of individual interviews is to help understand how the larger institution works. Even though interviews are conducted with individuals, they are used to understand the larger institutional picture, rather than using interviews to understand participants' individual situations.

A Mixed-Methods Approach

This dissertation took a mixed-methods approach approved by University of North Carolina Chapel Hill's Behavioral Institutional Review Board (Study No.: 10-

1678). The use of both qualitative and quantitative methods can often provide a better understanding of a subject than using either method alone (Creswell & Plano, 2007). Based on existing literature on organizational identity and reputation, a mixed-methods approach seemed most appropriate for the present research topic. I used interviews to explore the identity and reputation building activities of small firms because little is known about the subject. Additionally, while identity studies have almost always taken a qualitative approach (e.g., Corley & Gioia, 2004; Dutton & Dukerich, 1991; Elsbach & Kramer, 1996; Glynn, 2000), reputation studies have usually taken a quantitative approach (e.g., Deephouse, 2000; Fombrun & Shanely, 1996; Rindova et al., 2005).

According to Teddlie and Tashakkori (2009), a mixed-methods approach is more appropriate than a single method design in three ways. First, a mixed-methods approach allows researchers to “simultaneously ask confirmatory and exploratory questions and therefore verify and generate theory in the same study” (p. 33). Second, research using mixed methods can provide better and stronger inferences. Third, mixed-methods studies allow for a wide range of divergent views—that is, to understanding a phenomenon from different perspectives, not necessarily contradicting views. Additionally, several scholars have acknowledged that, because all methods have limitations, the use of mixed methods can help cancel out the biases of using one method over another (Benoit & Holbert, 2008; Creswell, 2009). In other words, qualitative and quantitative methods can complement and reinforce one another.

This dissertation’s mixed-methods approach employed interviewing and quantitative content analysis to seek answers to the research questions. Although both methods would provide answers to all the proposed research questions in some ways,

albeit from different perspectives, each method provides better answers for specific research questions than for others. Thus, the interviewing method was used to answer the first set of research questions (RQ1a and 1b) and the second set of research questions regarding the challenges and opportunities small firms face in creating identity and building reputation in an emerging field (RQ 2a and 2b). The quantitative content analysis method was used to answer the third research question (RQ 3). Both the interviewing and the quantitative content analysis methods were used to answer the fourth set of research questions (RQ4a and 4b). Finally, the last research question (RQ5) was answered using a qualitative comparison of qualitative results on identity values expressed in corporate materials and reputation attributes portrayed in the news media.

Interviewing

In using the interviewing method, I took an institutional approach in that I sought to use interviews to investigate how things happen, because an interview can take “for its entry point the experiences of specific individuals whose everyday activities are in some way hooked into, shaped by, and constituent of the institutional relations under exploration” (DeVault & McCoy, 2006, p. 18). I used informants’ accounts as a way of understanding how individuals, as proxies for their organizations, participated in different parts of institutional activities such as communicating their identity to other institutions in the field and managing their reputation among external stakeholders.

The purpose of institutional ethnography is not to generalize about the interviewees, but rather to “find and describe social processes that have generalizing effects” (DeVault & McCoy, 2006, p. 18). Further, researchers taking an institutional ethnographic approach seek to reveal how the larger social institution creates and

influences individual experiences (McCoy, 2006). Exploring how individuals describe their experience allows researchers to identify other institutional sites, organizational processes, and discourses for further investigation. Researchers conducting interviews from the institutional ethnographic perspective rarely know exactly how the interviewing will proceed (DeVault & McCoy, 2006). For this reason, semi-structured interviewing was appropriate for this dissertation.

Semi-structured interviewing can be viewed as a compromise between structured and unstructured interviewing. Structured interviewing uses the same sets of questions for all interviewees with specific sets of response categories, and the questions must be asked in the same order using the same script; unstructured interviewing, in contrast, features open-ended questions and does not necessarily have a set of guiding questions (Fontana & Frey, 2004). For this dissertation, I used semi-structured interviewing: although I used a set of questions to start or guide the interview, I had the flexibility of adapting the questions or altering the direction of the interview based on previous interviews and on the interviewee's responses.

Using an interview guide provides several advantages: 1) it ensures that the interviewer covers all the necessary topics in the same order, which helps preserve roughly the same conversational context for each interview; 2) it helps the interviewer to proceed smoothly during the interviewing process; 3) it guides the direction and scope of discourse; and 4) it allows the interviewer to pay more attention to the informant's responses (McCracken, 1988). Some questions may need to be supplemented, excluded, or edited based on the initial interviews. Each subsequent interview schedule built on

information gained from the previous interview to explore how a small firm builds reputation and creates identity in the emerging field of nanotechnology.

Selection of Participants

I used purposive and snowball sampling methods to identify persons who were able to provide relevant information about the identity and reputation of small nanotechnology firms. These included managers at small nanotechnology firms, government officials, scientists, and others familiar with or working with small firms in the nanotechnology area. As mentioned previously in chapter 1 (“Introduction”), interviews with managers at small nanotechnology firms allowed me to gain an understanding of how these firms create identity and build reputation and how they view their peers’ identity and reputation in the field. Similarly, interviews with individuals who are familiar with or work with small nanotechnology firms provided insight into how those outside of small firms view the identity and reputation of the firms.

First, using purposive sampling, I reached out to initial informants who were able to provide relevant information about the identity and reputation of small nanotechnology firms. Subsequently, I performed snowball sampling: I asked these informants to provide names and contact information for other members of the target population, whom I then contacted and asked them, in turn, to provide names and contact information for more members of the target population, and so on (Singleton & Straits, 2005). The institutional ethnographic approach described in the previous section informed this sampling strategy. Institutional ethnography research often uses an initial group of interviews as a starting point; the initial interviews point to and help researchers identify what perspectives are important and needed, who the informants are that may need to be

interviewed, what other pieces of the puzzle are missing, and where the research should go next (DeVault & McCoy, 2006; McCoy, 2006).

In the initial interviews, participants helped identify those who needed to be interviewed next to gain different perspectives and a fuller understanding of how small firms in nanotechnology create identity and build reputation. It was necessary to obtain the various perspectives of those who have different roles or influence on organizational activities. As Cheney (2000) pointed out, different people have different experiences of organizational life. McCoy (2006) and DeVault and McCoy (2006) also emphasized the need to gain understanding from people who are in different positions in an institutional field to piece together the bits and pieces of the institutional complex.

For this dissertation, then, it was insufficient merely to understand the views of managers or executives in the small firms; it was also important to explore the views of other actors who are part of the emerging field of nanotechnology. These actors include government officials, professional communicators, directors at relevant business or networking associations, executives at high tech consulting or research firms, and scientists involved in both academia and the industry. Following the institutional ethnographic approach, I initially interviewed three people: a government official responsible for promoting nanotechnology activities in a northeastern state, a scientist who is a faculty member at an academic university and founded a small nanotechnology firm, and a science journalist who assists university spin-offs in getting coverage in various media outlets.

I initially recruited the participants via e-mail (Appendix A). The interviewing guide I used during each interview varied slightly depending on the role of the

participant. Appendices B and C are the variations of the interviewing guide used for managers at small nanotechnology firms and for persons outside of small nanotechnology firms, respectively. The interviewing guide for managers at small nanotechnology firms adapts many of the questions used in Lellis' (2007) study on organizational identity. For interviews I conducted with managers at small nanotechnology firms, I asked the participants to provide materials that might be relevant to the identity and reputation of their firm. Appendix D lists documents identified as possibly relevant; this list is a modification of Lellis' (2007) checklist, which was compiled based on Diggs-Brown's (2007) text, *The PR Styleguide: Formats for Public Relations Practices*. I also asked the interviewees to provide the name and contact information of at least one other person in the field of nanotechnology, and, if possible, the names of people operating in states other than their own home state, so that I could access perspectives that might differ based on the interviewee's location.

I set out with no fixed number of interviews to perform but did aim to conduct two-thirds of my interviews with small firm managers and one-third of my interviews with those outside of small nanotechnology firms who were familiar with or work with such firms. An interviewer using this methodology continues until reaching the level of data saturation, a point "when no new categories or relevant themes are emerging" (Corbin & Strauss, 2008). I therefore continued the interviews until I heard no new patterns emerging in regard to small firms' identity forming and reputation building activities, or until interviewees were no longer providing information different from that of previous interviews. Given that this study used semi-structured interviews, I decided that I had reached a level of data saturation when interviewees' answers to core set of

questions about on how they create identity and build reputation begin to emphasize similar strategies and activities.

Following the approach described above, I conducted a total of 37 interviews, interviewing one person from each company or organization. Of the 37 interviews, 23 were with the top communication managers at small nanotechnology firms and 14 were with persons outside of small nanotechnology firms who are familiar with or work with such firms. For interviews with managers at small nanotechnology firms, the one person interviewed was the person presumed to be most knowledgeable about the communication activities of the firm, and therefore, able to provide the most information about that particular firm's identity and reputation-related activities.

I conducted the interviews via telephone between October 2010 and April 2011. Interviews were voice recorded, allowing me to pay close attention to the participant during the interview rather than taking notes. Before the start of each interview, I assured the participant that the information shared would remain confidential. Additionally, I read aloud a consent script (shown in Appendix E) to each participant stating his or her rights to 1) request a copy of the final report, 2) stop participation at any time, 3) refuse to answer any questions, and 4) request that the interview not be recorded.

Data Analysis

Each interview was transcribed and then analyzed from an interpretivist perspective. Using the interpretivist lens enabled me to gain an understanding of organizations and organizing. In addition, an interpretive stance allowed me to understand the experience of informants from their own perspective and standpoint. Cheney's (2000) essay on interpretive research discusses the meaning of taking an

interpretive stance; meanings most closely related to this dissertation include providing a “faithful representation” of the participants’ voices, “awareness of the multiplicity of perspective” within the social institution of interest, and a focus on meaning as constructed through social interaction (p. 23).

Keeping the interpretive perspective in mind, I analyzed the interview transcripts using thematic analysis. Owens (1984) defines *themes* as “a limited range of interpretations that are used to conceptualize and constitute” certain phenomena and “allow sense-making at different rates and in various forms fitting the specific current concern of the participants” (p. 274–276). Alternatively, Holloway (1997) defines themes as “a cluster of linked categories conveying similar meanings and forming a unit” (p. 152).

Thematic analysis allows researchers to identify common elements across different participants and their reported experiences. Researchers using thematic analysis are able to integrate responses across different participants and discover common elements among them. Spradley (1979) proposed the two main principles of thematic analysis, those of similarity and contrast. The *similarity principle* refers to the meaning of a symbol as discovered by its similarity to other symbols. The *contrast principle* relates to the meaning of a symbol as discovered by its difference from other symbols. Additionally, the researcher also needs to perform a participant check and validation with interviewees to make sure their responses are being interpreted in a way that represent their original meaning. In instances where I could not determine what the interviewees meant by their responses or I needed further elaboration on interview responses, I e-mailed or called the interviewees for clarification. This was possible because all

interviewees had provided permission for me to contact them with any additional questions or concerns. Some interviewees had requested that I share the interview transcripts with them, which allowed them to check and make sure everything was transcribed accurately. In addition, interviewees who reviewed their transcripts also provided elaborations on responses that might have been ambiguous.

I uploaded the interview transcripts into ATLAS.ti 6.2, a qualitative data analysis software package. Following the thematic analysis approach, I reviewed the interview transcripts several times to understand the different perspectives of the interviewees. During the first review of the transcripts, I did not take any notes so as to prevent coming to hasty conclusions about the meaning of the interview responses. Additionally, this allowed me to identify differences in participants' experiences and stay "attuned" to variations among the responses (Ezzy, 2002). In subsequent readings, I coded key words and phrases, adding notes to each code as necessary. During this process, I sought to interpret the meanings behind the interview responses and ask why participants were saying what they were saying. Finally, I let the themes emerge from the key words, phrases, and notes, both within specific transcripts and across various transcripts.

With the help of ATLAS, I was able to make notes, identify quotes that described certain themes, link different quotes, and label the relationships between and among the themes across all 37 interviews. After I conducted each interview, I transcribed it and uploaded it into ATLAS. I made notes on words and phrases that I thought portrayed how the interviewee's firm managed its identity and reputation. During subsequent interviews, the notes helped me identify if interviewees were using similar words or

phrases. This allowed me to determine whether I had reached the level of data saturation and helped me to see whether any interview questions needed to be modified.

After conducting and transcribing all the interviews, I took several steps to let the themes emerge from the interview transcripts. First, I read over all 37 interview transcripts without making any notes. This allowed me to get an understanding of the overall context and different perspectives. Next, I reviewed the transcripts again and highlighted different words and phrases, and made notes on the possible themes they might represent. At the same time, I kept a notebook on the side and listed those possible themes and took additional notes on alternative themes the words and phrases might indicate. Subsequently, I reviewed all the themes and their respective words and phrases to see if any of the themes were similar or could be collapsed. I also combined possible themes if they provided different perspectives on a similar subject. Appendix F provides a screen shot of ATLAS, which shows the memos, codes, and quotations for an interview excerpt.

Two research assistants helped finalize the themes. First, I provided the research assistants with excerpts relevant to the themes, and made sure that the excerpt had sufficient context for the quotations or phrases that were representative of different themes. The excerpts provided to research assistants were de-identified, meaning that I had removed any names or phrases that might reveal the true identities of the focal firms and substituted generic names or phrases to protect interviewees' anonymity. The research assistants reviewed the themes and relevant interview content to ensure that I was interpreting the interview responses in a way that was meant by the participants.

Once the 17 themes were finalized, I printed out the quotation outputs from ATLAS. The outputs for each code, or theme, included all the quotations from across the 37 interviews as well as memos associated with each quotation. From each theme, I selected the quotes that I thought most represented the interviewee's perspective. I chose these quotes because they were most representative of their respective themes, they supported and summarized several other interviewees' responses, and they helped tell a more compelling story. I describe the 17 themes that emerged in detail in the next chapter.

Content Analysis

Content analysis is described by Riffe, Lacy, and Fico (2005) as the “systematic and replicable examination of symbols of communication ... to describe the communication, draw inferences about its meaning, or infer from the communication to its context” (p. 25). Not only must content analysis be systematic and replicable, it also must use *valid* measurement rules. A researcher analyzes the data collected using content analysis to describe characteristics of the content and to identify the relationships among the characteristics (Riffe et al., 2005).

Content analysis is appropriate for the present study for several reasons. First, content analysis allows for longitudinal studies, because it can be used to examine any type of content that is recorded in some form. Second, content analysis is an unobtrusive method (Krippendorff, 2004; Riffe et al., 2005), which allows researchers to examine data without interacting with subjects and to prevent the introduction of subjects' bias into the data. Relevant to the subject of this dissertation, the content analysis method has been used specifically to study organizational identity (e.g., Aust, 2000, 2004; Lellis,

2007; Williams, 2008) and reputation (e.g., Deephouse, 2000; Kioussis et al., 2007; Murphy, 2010).

The content analysis in the present study combined human coding and computer-assisted content analysis. Organizational identity was examined with computer-assisted content analysis using DICTION 6.0, and firms' reputation was examined with content analysis using human coding. A computer-assisted content analysis method is optimal for analyzing organizational identity because identity claims can vary greatly from organization to organization. Although scholars have developed instruments for measuring identity (Aust, 2000, 2004; Lellis, 2007; Williams, 2008), these instruments often include a long list of concepts that need to be identified in the content, which may be too complex and time-consuming for human coders. As Holsti (1969) noted, the use of computers for content analysis is appropriate when the analysis involves a large number of categories. Riffe et al. (2005) contended that this reason for using computer content analysis is still appropriate today.

Human coding, on the other hand, is more appropriate for studying an organization's reputation, because the determination of reputational dimensions often requires human coders to notice the nuances in the content, which computer coding cannot do (Conway, 2006). Moreover, in contrast to the literature on organizational identity, in which only a few studies have proposed measures of identity (e.g., Aust, 2000; 2004; Lellis, 2007), the literature on organizational reputation includes a significant number of studies which have proposed and empirically examined the reputation attributes listed in Table 2 (e.g., Fombrun, Gardberg, & Sever, 2000; Groenland, 2002; Kioussis et al., 2007; Walsh & Wiedmann, 2004). Finally, the use of

human coding for firms' reputation may also serve as a validity check for the computer-assisted content analysis on the identity of firms.

Selection of Content

The selection of corporate materials and news articles to be analyzed was determined based on the interviewing data. If the interview participant was a manager at a small nanotechnology firm, then his or her firm was included as a study company. Two separate sets of content were collected: corporate information relevant to the identity communicated by the firms, and news articles representing the reputation of the firms. The interviewees from small nanotechnology firms were asked if they used any of the materials listed in Appendix D; if so, they were asked if they would share those materials with the researcher. Corporate content identified via the interviews was collected and analyzed using computer-assisted content analysis.

For each interviewee from a small nanotechnology company, the company name was used as the search syntax for identifying news articles to provide information related to the company's reputation. News articles were collected using two separate databases, LexisNexis, and Nanotech-Now, a comprehensive online database for nanotechnology. In LexisNexis, news articles were searched separately for each company with a search date ranging from the year the company was founded to December 31, 2010. The news sources searched included industry trade press, newspapers, magazines and journals, and scientific materials. In Nanotech-Now, articles about the focal companies were also searched using the company names. Nanotech-Now did not have an advanced search function, so results often included press releases, event notices, and other announcements. I reviewed all resulting items and selected only news articles that

mentioned the company of interest. Only articles prior to December 31, 2010, were collected. Content gathered from the database searches was analyzed using human coding.

The sampling unit for both sets of content was an entire document (e.g., a press release, a newsletter, or an article); however, the recording unit differed: the human coding of the news articles used individual articles as the sampling unit, whereas the computer-assisted content analysis of the corporate identity content used individual paragraphs as the sampling unit. The following section details the method of computer-assisted content analysis.

Computer-Assisted Content Analysis

This dissertation follows the methodology proposed by Lellis (2007), which builds on Aust's (2000) dissertation on identity in the United Church of God. According to both Lellis (2007) and Aust (2000, 2004), the values that are communicated by an organization can serve as indicators of organizational identity. Other scholars have also acknowledged an organization's expressed values as reflections of its identity. For example, Voss, Cable, and Voss (2006) posited that organizational identity is formed by top leaders' establishment of their organizations' core values. The authors set forth five different values—artistic, prosocial, market, achievement, and financial—as indicators of nonprofit professional theatres' identity. Glynn's (2000) study on the dual identity of the Atlanta Symphony Orchestra also separated the organization's identity into one that emphasized artistic values and another, utilitarian values. Following previous research that has used organizational values as expressions of organizational identity, the present study adapted the values instrument employed by Aust (2000, 2004) and Lellis (2007) to

measure organizational identity as expressed in the corporate documents. Even though the aforementioned studies focused on nonprofit organizations, these values apply equally to for-profit companies because they were formulated based on human values. In light of the concept of organizations as social corporate actors, adopting human values to represent the communicated identity of small nanotechnology companies is especially appropriate for this dissertation.

Aust (2000) built his values instrument based on Rokeach's value survey (1973), which lists and defines 18 terminal and 18 instrumental values (Appendix G). Although Rokeach's value survey was constructed for individuals, the social actor conception of organizational identity (Whetten & Mackey, 2000) allows for the application of individual values to organizations. According to Rokeach (1973), terminal values are concerned with an end-state and include values such as equality, freedom, national security, social recognition, and wisdom. Instrumental values refer to everyday behaviors and include values such as being ambitious, courageous, intellectual, and responsible.

Aust (2000) compiled a list of terms associated with each of Rokeach's values using standard English dictionaries and thesauri and Hart's (2000) value dictionaries. Next, Aust tested his value dictionaries on a random sample of the data, which consisted of his focal organization's newsletters to its members, its magazine, letters from the president and/or chairman, booklets, and a webpage. Additional terms communicated in the organization's documents that were not in the original value dictionaries were added. Each word in the value dictionaries was also expanded to include various tenses. For example, the terminal value *imaginative* is represented by terms such as *create*, *creative*, *discovered*, *discovering*, *inspire*, and *inspired*. Aust's final instrument included 1,039

terms representing Rokeach's 36 value categories. Aust conducted a pilot study using the 1,039-term value instrument on a stratified random sample of the data (5%). The purpose of the pilot study was to determine whether an acceptable level of inter-coder reliability could be obtained using human coding or if computer coding would be more fitting for assessing the identity of his focal organization. The low inter-coder reliability (Holsti = .083) prompted Aust to use computer coding using the DICTION software.

Computer coding can be advantageous because it can be cost-effective, reliable (Shapiro, 1997), speedy, consistent, time-efficient, and can process large volumes of text (Nacos et al., 1991). Also, specific to DICTION, the software is able to detect small differences that human coders cannot (Lowry, 2008). Originally developed by Hart (1983) for use in political communication research, DICTION is especially appropriate for the communicated messages of organizations. For this dissertation, I used DICTION 6.0 to analyze organizational identity values expressed in corporate documents shared by interviewees.

Description of pilot procedure. The present study did not adopt Lellis' (2007) values instrument directly, but rather replicated her method of refining Aust's (2000) values instrument. Based on Lellis' procedure, I conducted a pilot test using Aust's (2000) 1,039-term value instrument on a random sample (5%) of the corporate documents. First, I scanned the sampling units to determine the most appropriate recording units for the purpose of the study. Although Aust used entire documents as the recording units, Lellis pointed out that his documents varied widely in terms of their length and document type, and therefore she selected individual paragraphs of content as the recording units instead. I determined, after perusing individual sampling units, that paragraphs, rather than entire documents, would be the most appropriate units for this study.

As in the Aust (2000) and Lellis (2007) studies, in the sample for the present study, the length of each Web page or document varied greatly, from two paragraphs to more than 20 pages (in the case of annual reports). Further, the documents were predominately press releases, which may often include several paragraphs that describe other companies (e.g., a press release announcing a partnership between the focal company and another company). Therefore, the communicated values for each company might have been diluted if the analysis had included those paragraphs.

Consequently, each recording unit was reviewed, and relevant paragraphs were selected as recording units. Adapting Lellis' (2007) criteria, paragraphs were selected if they did one of the following: 1) referred to the company's name, 2) indicated the company's principles or purpose, 3) described the company's products or services, or 4) identified issues of concern to the company. For example, if a press release described a

study company as well as another non-study company, paragraphs that were solely about the non-study company were excluded. Bullets or lists were counted as one paragraph. Captions to photos, figures, tables, and chart contents, and disclaimers (common in news releases and annual reports) were excluded. Event and calendar listings were included only if they contained a description that satisfied one of the aforementioned criteria.

Next, I took a random sample (5%) of the recording units to search for value terms relevant to small companies operating in the nanotechnology field. A cluster sample was used to select an equal number of recording units ($n = 6$) from each of the 23 companies, with an exception of one company, which had only two recording units. This ensured that the different terminologies used by the companies were adequately represented. The resulting pilot sample included 134 recording units, representing approximately 5% of the total recording units.

I scanned the pilot sample and identified value-related terms ($n = 349$). Terms not listed in Aust's values instrument were added to the appropriate category. In a number of instances it was unclear which value category a term should be placed in, such as when a term would have a different meaning if placed in another context. Therefore, two research assistants familiarized themselves with Rokeach's (1973) value categories, separately reviewed the list of ambiguous terms, and categorized them as they thought appropriate. In cases of disagreement regarding the placement of a term, a discussion took place to reach a consensus. Finally, verb tense variations deemed relevant from the pilot study were added to the instrument. For example, the term *participates* was identified as a value-related term, and therefore, its tense variations *participate*, *participated*, *participating*, and *participation* were also added to the instrument.

Appendix H shows the customized 1,372-term value instrument resulting from this procedure.

Content Analysis Using Human Coding

The researcher and a research assistant coded the media content. As mentioned previously, human coding is more appropriate for studying corporate reputation because human coders are better able to determine the nuances in the content required for identifying reputational variables. In addition, the reputation literature has proposed and tested the different ways reputation can be measured. Finally, the use of human coding for firms' reputation may serve as a validity check for computer content analysis of the identity of firms due to the interconnectedness between identity and reputation. Because identity and reputation feed off each other, and because reputations are the evaluation and assessment of identity and identity incorporates reputational feedback (Bouchikhi et al., 1998), a relationship may be found between the results from the two types of content analysis.

A research assistant who has been working with me on nanotechnology projects helped with the coding of the media content. The content was coded using Qualtrics, an online survey tool available through the university. The variables coded are described in the next section.

Coding variables. The coding protocol used for the quantitative content analysis portion is included in Appendix I. The coding variables were categorized into four main categories: article information, company variables, reputation attributes, and association. Variables in the article information section include the article ID, the publication name, the section or page where the article was placed, and the article type. Coding options for article types included feature news, hard news, opinion or editorial, and review.

The section on company variables sought to determine how the focal firm was being covered in the media content. The relevant variables included *focal company*, *dominance*, and *news value*. For *focal company*, the coders specified the name of the company that was the focus of the media content. The dominance of the focal company in the media content was also coded. *Dominance* referred to whether the mention of the company was essential to the article. Coding options for dominance included *dominant*, *average*, and *in-passing*. For the *news value* variable, the coders determined why the focal company attracted media attention or why the company was mentioned in the article.

The third section used a combination of reputation attributes taken from Harris Interactive's Reputation Quotient (Harris Interactive, 2009) and the Reputation Institute's performance indicators (Reputation Institute, 2010). Small modifications were made to the reputation attributes for the purpose of this dissertation: attributes under the overall category of *emotional appeal* were removed and the category of *organization* was added. *Emotional appeal* was removed because it has to do with the affective aspect of reputation, whereas all the other categories are focused on cognitive aspects of reputation. The esteem or overall emotional appeal was measured instead by whether the reputation

attributes were mentioned positively or negatively in the news articles; this is in line with Carroll's (2009) study that found a significant relationship between firms' focal media favorability and their public esteem. The *organization* category was added in order to address some attributes that may be relevant to small businesses operating in nanotechnology, including having an entrepreneurial spirit and the ability to adapt quickly to change. Additionally, the attribute "is effectively focused on creating *shareholder* value" was changed to "is effectively focused on creating *stakeholder* value." This change was made because most of the focal companies are privately held and may not have shareholders.

The coding protocol used 30 reputation attributes that fall under six overall categories: leadership, organization, performance, products or services, social responsibility, and workplace. As mentioned previously, although Harris Interactive's Reputation Quotient has been empirically tested, these studies have focused mostly on testing the instrument on large, highly visible corporations (e.g., Abraham et al., 2008; Apéria, Brønn, & Schultz, 2004; Carroll, 2010; Kioussis et al., 2007). Therefore, the purpose of using this set of variables in the present study was to apply existing reputation attributes and see whether they are equally valid measures for small businesses operating in an emerging field.

Additionally, for the section on reputation attributes, if the coders selected the *leadership* category, they had to code two additional variables: they had to determine whether the leader mentioned in the media content was the CEO of the focal company, and if so, they had to code for the reputation category specifically associated with the chief executive officer (CEO). This coding variable was based on Park and Berger's

(2004) five categories of CEO image assessment, which they adapted from Miller, Wattenberg, and Malanchuk (1986). The reason for adding these variables is that the personality and characteristics of the CEO often determine the strategy, structure, and operation of small firms (Miller & Toulouse, 1986; Simsek, Heavey, & Veiga, 2010). Further, individuals such as CEOs may become the embodiment of an organization (Cheney, 1992), especially when the firm lacks legitimacy or recognition. For example, a small nanotechnology firm may not be widely recognized in its field, but its founder and/or CEO may possess legitimacy and recognition. He or she may be a scientist who has received a Nobel Prize for a particular discovery or who has published extensively in the area of nanotechnology and gained elite status in nanotechnology circles. When studying the reputation of small businesses, then, it is essential to include variables that measure the media coverage of CEOs in terms of how they relate to the reputation of their organizations.

Finally, in the association section, the coders identified whether the media content discussed a formal relationship between a focal company and another organization. The affiliation had to be a formal tie, such as through a network, partnership, or contractual agreement. If a formal tie existed between the focal company and another organization, then the coders determined the type of organization the focal company was affiliated with. The affiliate organization might be an academic institution, a local or federal government organization, a research institution, another nanotechnology company, a non-nanotechnology company, or a nonprofit organization. This variable was included because a review of the small business literature reveals that small firms are more likely to form cooperative arrangements such as networks and alliances (Shan, 1990), which are

beneficial to small firms in gaining competitive advantage and access to resources (Baum, Calabrese, & Silverman, 2000; Malecki & Tootle, 1996). Moreover, according to institutional theory, association with legitimate organizations may help an organization obtain legitimacy. As other scholars have illustrated, the quality and reputation associated with one company can improve the reputation and legitimacy of another company that is associated with it (Carroll, 2008a, 2011b; Deeds et al., 2004).

Training and reliability. Before coding the sample content, the research assistant and I familiarized ourselves with the coding protocol and underwent four training sessions to improve our understanding of the variables and to ensure that the coding protocol was clear. The purpose of the first session was to review the coding protocol and discuss any disagreements about how to code for the variables. During subsequent sessions, we applied the coding protocol to a set of 20, then a set of 30, and finally a set of 40 articles. For the training sessions, inter-coder reliability was calculated for variables that required the researchers to make a judgment call. The articles used for these training sessions were searched using the name of a small nanotechnology company separate from the 23 focal companies. When the inter-coder reliability during the training session was deemed sufficient, we conducted a formal reliability test.

For the formal inter-coder reliability test, I randomly sampled two or three articles from each of the 23 companies, generating 50 articles from the dataset, which was approximately 5% of the sample population ($n = 1054$). The percentile agreement for all the top-level variables requiring judgment ranged from 93% to 100% (Scott's Pi ranged from .83 to .98). Three particular second-level variables had Scott's Pi lower than .75,

although the percentile agreement for all three variables was 98% and above. Table 3 shows the inter-coder reliability breakdown.

Table 3

Inter-Coder Reliability for Coded Variables

Variable		% Agreement Scott's Pi			
Article Type		94%		0.88	
Dominance		93%		0.83	
News Value	Leadership	98%		0.94	
	Innovation	96%		0.90	
	Awards & Recognition	98%		0.88	
	Cooperative Arrangement	100%	98%	1.00	0.95
	Facility	100%		1.00	
	Conferences & Events	98%		1.00	
	Financial Performance	98%		0.92	
CEO Attributes	Competence	98%		0.91	
	Integrity	100%		1.00	
	Reliability	100%	100%	1.00	0.98
	Charisma	100%		1.00	
	Personal	100%		1.00	
Reputation: Leadership	Has a clear vision for its future	96%		0.78	
	Has leaders who are visible and accessible	98%		97%	0.88
	Has strong and credible leaders	96%			0.78
	Makes difficult business decisions in a timely way	98%			0.96
Reputation: Organization	Has an effective system of governance	100%		1.00	
	Maintains an entrepreneurial spirit	98%		0.85	
	Is responsive to the demands of its constituents	98%	99%	0.96	0.96
	Adapts quickly to change	100%		1.00	
	Invites open and frank communications	100%		1.00	
Reputation: Performance	Consistently delivers strong bottom line results	100%		1.00	
	Shows strong prospects for future growth	92%		0.77	
	Is effectively focused on creating stakeholder value	100%	98%	1.00	0.95
	Tends to out-perform its competitors	100%		1.00	
	Lives up to its promises and commitments	100%		1.00	
Reputation: Products or Services	Is a leader in innovation	94%		0.82	
	Makes high quality products & delivers quality services	100%	97%	1.00	0.86
	Stands behind its products & services	96%		0.65	
	Makes products & delivers services that improve people's lives	98%		0.96	
Reputation: Social Responsibility	Helps improve local communities	98%		0.66	
	Acts responsibly to protect the environment	96%		0.92	
	Supports good causes and organizations	100%	99%	1.00	0.92
	Is committed to developing sustainable business practices	100%		1.00	
	Demonstrates honesty and integrity in its actions and communication	100%		1.00	
Reputation: Workplace	Rewards its employees fairly	100%		1.00	
	Hires the best employees	98%		0.85	
	Is a good company to work for	100%		1.00	
	Encourages employee growth and development	100%	100%	1.00	0.98
	Recognizes and supports employee diversity	100%		1.00	
	Values employee safety	100%		1.00	
	Encourages development of women and minorities	100%		1.00	
Association	Academic Institution	98%		0.66	
	Research institutions	98%		0.96	
	Nanotech companies	98%	98%	0.96	0.89
	Non-nanotech companies	96%		0.85	
	Non-profit organizations	100%		1.00	

Data Analysis

DICTION 6.0 was used to analyze the identity-relevant values expressed in the corporate communication documents. I imported all of the recording units into the software program and created dictionaries for the 36 values using the defining terms taken from the customized value instrument. DICTION 6.0 analyzed the recording units for each of the companies using the customized dictionary and created 23 separate reports. The reports were downloaded into an Excel spreadsheet and descriptive statistics for each company's report were calculated. After examining the report for each company, I also investigated the companies collectively by taking the mean relative percentage of the companies for each of the 36 values.

Data collected from Qualtrics were downloaded into an Excel spreadsheet for formatting. Articles marked for deletion for reasons specified in the coding protocol were removed from the spreadsheet and the data relevant to the reputation dimensions and attributes were copied and pasted into a separate spreadsheet and descriptive statistics on the reputation variables were calculated. As with the analysis of the identity-relevant values, I then examined the companies collectively by taking the mean relative percentage for each of the 30 reputation attributes. Descriptive statistics for the other variables were also calculated.

In the analyses, relative percentages for the 23 companies were used rather than the actual number of occurrences. The amount of communication materials and the number of news articles varied greatly from one company to another. The use of relative percentages ensured that the results were not skewed toward companies that had more communication materials or articles.

CHAPTER 5

DESCRIPTIVE ANALYSIS

Interpretive Analysis of Interviews

A total of 37 interviews were conducted, each lasting between 30 and 77 minutes, with an average of 43 minutes per interview. Interviews with managers at small firms tended to be longer than interviews with persons outside of the firms. The length of the transcripts ranged from 5 to 20 pages, single spaced, and the word count ranged from 1,939 to 8,754.

Of the 37 interviews conducted, 23 were with managers who had top-level communication responsibilities at small nanotechnology companies. Table 4 describes the characteristics of the companies and the respective interviewees. The age of the company and number of employees are expressed using a range rather than an exact number to allow for easier comparison among the companies. Each company was assigned a letter and its participant a pseudonym, to protect the anonymity of the company and the participant. For the remainder of this dissertation, individual companies will be referred to by their assigned letter and interviewees will be referred to by their pseudonyms.

Table 4

Profile of Companies and Interviewees

Company	Age	No. of Employees	Participant	Position
Company A	16-20	1-20	Adrian	Sales and Marketing Manager
Company B	1-5	1-20	Brian	Chief Executive Officer
Company C	6-10	21-40	Catherine	Director of Marketing Communication
Company D	6-10	21-40	Darren	Vice President of Business Development
Company E	11-15	1-20	Eric	Vice President of Business Development
Company F	> 20	41-60	Frances	Founder and President
Company G	6-10	21-40	George	Public Relations and Marketing Manager
Company H	6-10	81-100	Harry	Chief Executive Officer
Company I	> 20	41-60	Irena	Vice President of Marketing and Sales
Company J	6-10	1-20	Jordan	Chief Executive Officer
Company K	16-20	21-40	Kim	Vice President of Business Development
Company L	11-15	21-40	Lillian	Vice President of Business Development
Company M	16-20	21-40	Malcolm	Vice President of Operations
Company N	11-15	21-40	Nancy	Vice President of Marketing
Company O	6-10	61-80	Oliver	Director of Marketing
Company P	> 20	61-80	Peter	Marketing Manager
Company Q	6-10	21-40	Quincy	President and Chief Executive Officer
Company R	1-5	21-40	Ray	President
Company S	6-10	61-80	Sarah	Founder and Chief Technology Officer
Company T	6-10	1-20	Terrance	Founder and Chief Executive Officer
Company U	> 20	1-20	Ursa	President
Company V	11-15	1-20	Victor	Chief Technology Officer
Company W	6-10	21-40	Wyatt	Chief Executive Officer

Note. The number of employees for all 23 companies ranges from 5 to 85 employees. The age of the companies for all 23 companies ranges from 2 to 38 years old. Also, each participant was assigned a pseudonym to protect their anonymity; the gender of pseudonym may or may not correspond to the actual gender of the participants.

Of the 37 interviews, 14 were conducted with persons who were familiar with or worked with small companies in the nanotechnology field. Table 5 shows the letters and

pseudonyms assigned to each organization and participant, respectively. Note that each of the 23 firms is referred to as “Company A,” “Company B,” and so on, while organizations that were not among the 23 focal companies are referred to as “Organization A,” “Organization B,” and so on. All 37 interviewees were assigned a distinct pseudonym.

Table 5

Profile of External Actors and Their Organizations

Organization	Participant	Type	Position
Organization A	Amanda	Consulting	President
Organization B	Benjamin	Academia; Nonprofit	Faculty; Director; Founder
Organization C	Casey	Nonprofit	President; Founder
Organization D	David	Corporate	Vice President
Organization E	Evelyn	Consulting	President
Organization F	Fred	Nonprofit	Executive Director
Organization G	Gerry	Media	Chief Executive Officer
Organization H	Hank	Government	Executive Director
Organization I	Ingrid	Corporate; Research	Director
Organization J	Jonas	Government	Director
Organization K	Kyle	Corporate	Director
Organization L	Lenny	Academia; Corporate	Faculty; Director; Founder
Organization M	Mary	Consulting; Corporate	Managing Partner
Organization N	Natalie	Corporate	Chief Executive Officer

Note. Each participant was assigned a pseudonym to protect their anonymity; the gender of pseudonym may or may not correspond to the actual gender of the participants.

The external actors were identified and/or referred by an interview participant as being familiar with the nanotechnology field and/or having worked with small firms in the field in some capacity. For example, Benjamin from Organization A was the director of a nanotechnology-related university research program as well as a faculty member at that university. Additionally, he co-founded a small company involved in the

nanotechnology area. Each external actor was asked a set of background questions to determine his or her eligibility to participate in the interview and to access his or her knowledge of the topic. The set of interviewing questions was then adapted to each individual's particular background.

The following section discusses the findings from the semi-structured interviews and the themes that emerged through the interpretive analysis of the interview transcripts.

Acknowledging Subjective Positioning

In a previous section describing the data analysis approach for the interview transcripts, I mentioned that I would be taking an interpretive stance. The use of the interpretivist lens inherently means that my personal inclinations and affect may have influenced the interpretation and representation of the interviewees' responses. Fontana and Frey (2004) noted this as a characteristic of interviewing when they described the method as inherently bound by historical, political, and contextual issues. Personal inclinations that may affect the interpretations and representation of the interview responses should be acknowledged here before I present my findings.

First, it is my view that public relations should play an important role in an organization, regardless of its size or field, and therefore that organizations engage in public relations activities even if they may not consider those activities to be such. Consequently, I may be more prone to categorize activities as identity- or reputation-related than other interpreters would be. I reminded myself of this particular inclination constantly in the analysis and interpretation processes in order to minimize its influence on how I interpreted the interview responses.

Second, I defined the key terms and parameters for this dissertation based on my academic and professional background. Although they were grounded in the literature of the relevant fields, it is possible that interviewees might not agree with the key terms or research parameters. I mentioned in the limitations section for the interviewing method that, while I am familiar with the terms *identity* and *reputation* and am able to make a clear distinction between the two, interviewees may have different ideas about what *identity* and *reputation* may mean. Additionally, participants may have a different definition of what a small firm is, which may not correspond to the definition used in this study.

To address these issues, during each interview, I asked the participant to define identity and reputation for me before proceeding with the questions related to the two terms. Similarly, I asked participants whether they considered their company a small business. I found these questions to be informative and even essential to understanding the perspective of the participants. The 37 participants were split between whether or not they considered identity and reputation to have the same meaning or different meanings. Harry from Company H said that “reputation *is* identity.” Hank from Organization H, however, stated that “identity is more categories, reputation is more performance.” Many participants who distinguished identity as different from reputation, however, described the two as “intertwined” with and “strongly related” to one another.

Finally, because my professional background has been in the small business environment, I may have some preconceived idea about the structure of small firms as well as the role that public relations and communication should play in these firms. For

this reason, during the interviews I also asked the respondents to describe their organizational structure as well as their communications activities and responsibilities.

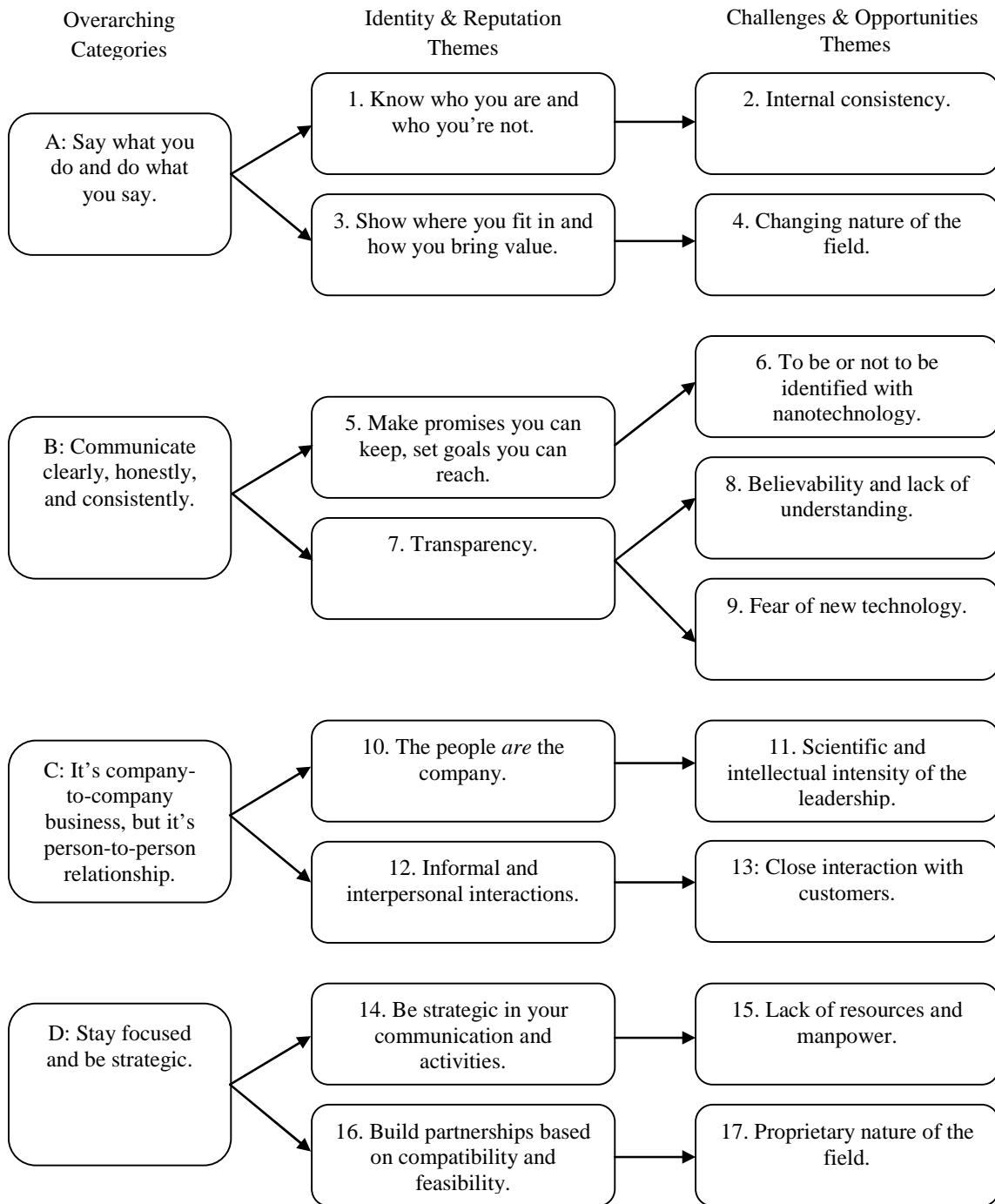
In summary, I have pointed out three relevant personal biases that might have affected the research process. I have also addressed how I attempted to reduce the influence of these biases in the collection, analysis, and interpretation of the interview responses. By acknowledging my subjective position, I believe I have better prepared myself to understand the experience of the interviewees from their own perspectives and standpoints.

Emerged Themes

From the thematic analysis of the interview transcripts, 17 different themes emerged. The themes fall into four overarching categories. Within each category, there are themes that correspond to identity and/or reputation strategies. Each identity and reputation theme has corresponding theme(s) that describe its respective challenges and/or opportunities. Figure 1 illustrates the relationship among the 17 themes.

Figure 1

Relationships Among Emerged Themes



Theme #1: Know who you are and who you're not. A company needs to know “who we are” and “who we want to be.” Several small business managers said that an agreed upon and consistent identity helps a company identify the right investors, the right market, and the right partners. Some managers strongly believed that if a company does not know who they are, they should not communicate. For example, interview participant Nancy from Company N said the following:

It's very important from an identity perspective to be very clear with the customers. If you can't talk about what your company does in just a few short lines or tags ... then you haven't done a good enough job of understanding and defining what you do. And technologists often say that if you can't explain what you do to your grandmother, you probably don't have a good enough understanding of it.

From Nancy's perspective, a clearly defined identity is an important aspect of communication with customers. Similar, Harry from Company H explained that his company clearly defines what it is and what it is not. In his view, communication strategy can only “express what the company already is.” Consequently, if a company cannot express what it is, it should refrain from communication to external audiences about its identity.

An anecdote provided by Catherine from Company C illustrates how an indeterminate identity that is communicated externally can have a negative impact on the company. Company C had a “cool” technology, although it had no clear idea of what it was going to do with it; however, the company proceeded to communicate externally about its identity. For a while, Company C's identity was simply its technology. A few years later, when Company C finally decided that it wanted to be perceived as a company that provided easy solutions to difficult problems, there was a backlash from its having communicated too early. There was much confusion among Company C's external

audiences such as the media, potential investors, partners, and customers about what the company does *not* do. Catherine spent much of her energy on what she called “reactive management,” in which she had to try to erase the previous identity from the “memory bank” of journalists and other external audiences. Catherine’s insight from her experience was this: “The last thing you want as a small [company] is to be represented as something that is 180 [degrees] from what you’re doing.” She went on to say that when a company starts talking about itself, the information needs to be accurate.

A company’s clearly defined identity, however, can only be communicated externally if there is consistency in employees’ understanding of that identity. The ability to ensure this internal consistency was a challenge faced by several interviewees. This challenge is described in the next theme.

Theme #2: Internal consistency. As the previous theme indicated, a company should not communicate externally until it can clearly define its identity. To make sure that identity is communicated accurately to external audiences such as the media, investors, or partners, it is necessary to achieve consistency in how the employees understand that identity. It is key, Irena from Company I emphasized, to have “a single, coherent message” if a company wants its identity communicated accurately to external audiences. However, this is often difficult to achieve. Irena said that she overcame this challenge in two ways: by using “hiring practices, training, and concept improvement” to facilitate a consistent understanding of the company’s identity, and by having a “coordinated, strategic direction from the top.”

Darren from Company D also highlighted the importance of an identity that is clearly understood by all employees. He stated that the “biggest challenge is getting

everybody on the same page.... If you don't do that, then your external communications are going to fall apart from the lack of support, from the lack of consistency, and what your decisions are." He explained that a company's vision, mission, values, goals, and everything it does from a communication standpoint need to work toward that identity.

This theme demonstrates that for a company to express a clearly defined identity to external audiences, the company must first ensure that the identity is communicated consistently to its own employees. Based on the interpretation of the interview transcripts, two things are essential for a company to establish a clear identity and to communicate that identity consistently both internally and externally: it must identify its role in the existing marketplace and technological landscape; and it must show how it can bring value to its customers, partners, and investors. The following theme illustrates the importance of these.

Theme #3: Show where you fit in and how you bring value. Interviewees agreed that a small company operating in the nanotechnology field needs to figure out how it fits into the marketplace and the overall technology landscape. Essentially, a small nanotechnology firm should identify its role in the supply chain, such as producing raw materials, manufacturing specific parts or products, integrating materials with existing manufacturers, or producing end-user products. Only then can the company communicate the values that it brings to its investors, partners, and customers. Quincy from Company Q commented that a company cannot think that its technology "inherently creates economic value." A small company in the field must show how its technology can be applied to solve problems if it doesn't want to "lose."

Based on his experience working with small firms in the field, Fred from Organization F believed that one reason many nanotechnology companies fail is because they didn't have an understanding of where they fit in the existing market. Catherine from Company C shared Fred's belief. She contended that many firms "have little understanding of how they fit into the global technology development landscape.... They know what they do and they think what they do is the best in the world, but they really have no idea what anybody else is doing in the world."

One interview participant, Terrence from Company T, believed that his firm has been successful in using this strategy. He described how his team normally proceeds:

We try to get educated on who the players are, what their needs are, and then we match their needs with our capabilities. We go speak with the facts, show them the data, and then we get them to test and validate it on the bench in their labs to make sure that our heads are on straight. And then we work with them to critically put things in place and incentivize them to move down the track with us to bring these products to market.

For a company to clearly identify where it fits in and how it can bring value to the marketplace or to specific partners or customers, it needs to have a firm grasp and a clear understanding of the field in which it operates. The changing nature of nanotechnology as an emerging field, however, can make this difficult for small firms.

Theme #4: The changing nature of the field. As an emerging field, the science of nanotechnology is ever-changing, which means a company that operates in the field needs to be constantly adapting to the changing environment. For a small nanotechnology company, this increases the difficulty of showing where it fits in and of demonstrating to its customers, partners, and investors how it can bring value. For example, Amanda from Organization A commented that a lot of small nanotechnology companies face this challenge. "It's hard when you're dealing with technology, because

people don't always know what it's going to be for, and sometimes companies go through a lot of identity problems," she said.

Nancy from Company N echoed Amanda's sentiments from the perspective of a small nanotechnology firm. When a company communicates its identity, Nancy said, it has to do that in every facet of its communication and make sure that it is reaching all the potential customers. To do this, however, a company needs to know who its customers are, which can be "more difficult in an emerging market." The company may know who the potential customers are, but there are often other potential customers the company does not yet know about. The difficulty is "having a messaging path" that can reach both the identifiable customers and the "shadow customers"—those potential customers that her company may not yet know about but that may also benefit from using her company's technology.

Some participants, however, discussed the shifting environment as an opportunity, because small nanotechnology companies are more often able to adapt their focus than larger firms are. For example, Jonas from Organization J believes that because small nanotechnology companies don't have many layers of management, they can be "much more nimble" and "move more aggressively and assertively into new areas." According to Peter, his company (P) clearly demonstrates the adaptability of small nanotechnology companies: "I think we're demonstrating that right now with our ability to change our focus so quickly and get it out companywide and get everybody on board with this idea of us being a solutions company and not just a products company."

The need to adapt to the shifting environment, however, also means that a small nanotechnology firm should be cognizant of the possible need to adapt its identity to the

changing environment. This, of course, does not mean that a firm needs to change its existing identity. However, the firm may need to consider adapting its new focus into the firm's identity, if that new focus is not already part of its existing identity.

The four themes just described are relevant to a company's ability to establish a clearly defined and consistent identity. Once a company is able to say what it does and do what it says, the next step is to make sure it communicates the established identity clearly, honestly, and consistently, and thereby builds a credible reputation. The next five themes describe how a small nanotechnology company may be able to build a reputation that is credible, and the challenges and opportunities that it may encounter in the process.

Theme #5: Make promises you can keep, set goals you can reach. The key to building a credible reputation for a small nanotechnology company is to deliver on promises, reach goals, and meet expectations. While companies need to take risks and set aggressive goals, they also need to be able to reach those goals. The interviews indicated that one of the most common mistakes made by small nanotechnology firms is that they often overpromise and under-deliver. Both managers at nanotechnology companies and external actors involved in the field expressed this sentiment.

Victor from Company V stated that if a company wishes to improve its credibility, it needs to be able to “establish a target, establish a date,” and then “deliver on that.” Frances from Company F was puzzled as to why so many companies seem to overpromise and under-deliver by choice:

A lot of people will tell you it's because they took private equity money or venture capital money, [but] I don't believe that's the reason. In my view, if we took money from investors, then we owe them not to fail. We have a personal

oath that we pledge to do everything not to fail. I really don't see that same level of commitment from many of these other companies.

Lillian from Company L also explained her view of why small nanotechnology companies may fail: when a company “overpromises and under-delivers,” she said, its reputation can be easily tainted and that information spreads through the industry very quickly.

From the perspective of Mary from Organization M, people are not very realistic about what their product can do because they are often “really in love with what the technology is.” Ingrid from Organization I agreed with Mary and advised that a company needs to be honest, not only with its investors, customers, and partners, but with itself as well. Ingrid postulated that many of the companies that under-delivered were not necessarily lying when they said that they could achieve a certain goal, they were merely “not being very realistic and [not] looking at ... what all the challenges were really going to be.”

This theme of making promises one can keep and setting goals one can reach was emphasized repeatedly by participants, and was cited as a common mistake that small nanotechnology companies make. Participants' interview responses show that the failure of many small nanotechnology firms to keep their promises and meet their goals has led to nanotechnology's loss of credibility among potential investors, customers, and partners. Consequently, many participants and their companies often struggle with whether or not they should identify themselves with the term *nanotechnology*.

Theme #6: To be or not to be identified with nanotechnology. Interviewees differed somewhat on whether or not a company with activities involving nanotechnology should identify itself as such. Many participants leaned to the cautious

side because of the hype and skepticism surrounding nanotechnology and companies operating in the field. For example, Brian from Company B felt that nanotechnology is facing “the loss of credibility” from potential investors, customers, and partners. At one point he seriously considered changing his company’s name and taking “nano” out of it because “there was so much hyperbole stated over the last couple of years about nanotechnology.”

Some of the participants interviewed have opted not to identify their companies as nanotechnology-related and have gone so far as to exclude “nano” from their corporate names and descriptions. Terrence from Company T made the decision to exclude “nano” from his company name when he started it, “so that it’s not like a dot com thing.” He strongly believed that he was “one hundred percent right” in his decision, because many companies who used the word were “over-funded” and “over-hyped.” Ray from Company R adopted a similar strategy. He acknowledged that it may be good to associate oneself with nanotechnology during the “hype stage” because of the opportunity to get funding, but if the company doesn’t actually deliver, then the failure to deliver promised results becomes detrimental to the company, “so in our case, we just try to stay away from that,” he concluded. Similarly, Quincy said that his company has “erased every reference to nano in our capabilities presentation.” He continued: “We don’t describe ourselves as nano, we don’t use it anywhere.... As soon as you have the world define you as a nano company, you’re doomed.”

Wavering in their strategies are several participants who still struggle with the decision. For example, Sarah from Company S said that those in her company still “wrestle” with “how strongly do we want to be part of that club.” She continued, “We

definitely want people to see us as someone that shift products, not one that does science technology, which is what nanotechnology today is strongly associated with.” Sarah said her company’s identification with the term “nano” has been “a little bit of a roller coaster ride.” That identification may be really good thing in some years, but in other years it’s a really bad thing, she concluded.

From an external perspective, Evelyn from Organization E was cynical about the subject:

Anybody can be a nanotechnology company if they want to be funded. A [venture capitalist] person or the government will unashamedly use that to get something even if it’s not a nanotechnology capability.... There can be a lot of charlatans out there.

Hank was equally cautious about companies that use the term; however, he took a more optimistic tone on the subject and suggested that companies who identify with term “lead with the benefits” rather than “lead with nano” in their communication strategies.

One participant, Lenny from Organization L, attempted to explain why this dilemma of to be or not to be identified with nanotechnology exists. The interesting thing about nanotechnology, he pointed out, is that it has so many different aspects and has infused itself into almost all industries. Lenny observed that there are industries that depend entirely on nanotechnology, such as the magnetic lead heads industry, though most people don’t recognize magnetic lead heads companies as nanotechnology companies. On the other hand, he continued, there are companies that deal purely with nanomaterials and identify themselves as nanotechnology companies. It appears that, as Hank had suggested previously, the real issue is whether companies who identify themselves as nanotechnology-related are able to show the value and benefits they can bring with their technology rather than just coasting on a “cool idea.” Evelyn from

Organization E shared her conclusion on the subject: “My perspective is that it’s a word that can be used but I’m not sure it differentiates you in any way.”

A nanotechnology company must make promises it can keep and set goals it can reach if it wants to build a credible reputation. In sum, this theme shows that because the failure of many nanotechnology companies to keep their promises and meet their goals has led to the field’s loss of credibility, a company’s identification with nanotechnology may or may not be beneficial for its reputation. Therefore, it is imperative that a small company operating in the nanotechnology field communicate clearly, honestly, and consistently about their identity and activities. This can be done in two ways: by keeping promises and reaching goals, as stated in Theme #5, and by being transparent in terms of the company’s progress, strengths, and weaknesses, as the next theme suggests.

Theme #7: Transparency. Interviewees emphasized that a small company should be transparent about its strengths and weaknesses in its communication with its customers, partners, and investors. Transparency doesn’t necessarily mean telling all, but it does mean that a firm should be honest about what it can and cannot do. The need to be transparent is vital for a small company operating in the field, because nanotechnology involves complex scientific information that can be difficult for people to comprehend. This lack of comprehension and the newness of the technologies may lead to fear and skepticism among potential investors, customers, and partners, as well as the general public.

Terrence from Company T considered transparency an essential aspect of his company’s communication. He recommended that small nanotechnology companies be transparent about their strengths and weaknesses with external stakeholders such as

customers and partners. If he and his team don't know their weaknesses going into a partnership with a customer, for example, the customer *will* point them out, which can reflect badly on the company. Part of this transparency, Terrence said, includes being open to customers and partners about the company's progress.

Jordan from Company J mirrored Terrence's recommendations and described his own company's strategy, which is keeping open the feedback loop with the customers: "You have to let them know along the way if [the technology] is going to work or if it's not going to work," and be honest about progress. As another participant, Sarah from Company S, put it, a small nanotechnology firm needs to be "really clear about expectations" with the customers and continuously "manage those expectations."

Eric from Company E emphasized the importance of transparency in his company's communication. For example, he described a recent situation where Company E decided to add a new customer who was a competitor of an existing customer. Eric said that his company called up the existing customer and was forthright with them about the new partnership. The existing customer was told why Company E had decided to take on the new customer. Further, Eric and his team expressed to the existing customer that they valued their long relationship and gave assurance that they would do everything they could to protect them. These are hard conversations to have, Eric admitted, and while most customers appreciate it, some don't.

Interview participant Amanda has worked with small nanotechnology companies for over a decade. From her perspective, many of these companies are "extremely secretive" and often "go into their own stealth mode and nobody can find out what they are doing." David from Organization D also considered lack of transparency to be one of

the problems small nanotechnology companies face. He observed that a lot of the small nanotechnology companies he is familiar with often “don’t want to admit when they don’t know something.”

In sum, many participants agreed that small nanotechnology companies often lack transparency, which is important, particularly when dealing with an emerging field like nanotechnology. Transparency may help address two challenges small business participants identified in the interviews: believability and fear of the technology among potential partners, investors, customers, and the general public. The following two themes describe these challenges.

Theme #8: Believability and lack of understanding. Nanotechnology is inherently difficult to understand because it involves complex scientific information. Consequently, interviewees noted that the credibility of the science is often an issue, something that can be attributed to external audiences’ lack of understanding about the science. For example, Victor from Company V reported “believability” as the main challenge his company faced when communicating to external audiences. He recollected that when the company started, nobody believed that it could do things at the nanoscale. In the same vein, Adrian from Company A stated that “the biggest challenge is trying to get people to understand what the technology is; it’s very difficult for them to wrap their head around it.”

This lack of understanding may be exacerbated because many small companies’ representatives, often scientists or technologists, have difficulty explaining the science or technology in terms which the layperson can understand. Mary from Organization M observed that in nanotechnology, there is much more “heavy technical intensity,” and

therefore it is often difficult to tell what the company is selling. She cautioned that “the real danger is getting buried in the science.” Similarly, Hank from Organization H identified this lack of understanding as one challenge particularly relevant for an emerging field like nanotechnology, because small companies may be creating “a new market for something that previously didn’t exist.”

The field of nanotechnology is not only difficult to understand because it involves complex science, but also because it is new, and people often fear what they don’t know. This leads to the next theme, which describes another challenge that a small nanotechnology company may need to overcome.

Theme #9: The fear of new technology. New technologies are often regarded with fear and skepticism; the interviews with participants showed that a small nanotechnology company is often faced with the task of addressing these fears. Amanda from Organization A explained that because “people don’t know what [nanotechnology] is ... they are afraid of it [and] are not necessarily sure it’s going to be a good thing.” George from Company G has had to face this challenge; he described his experience dealing with the public fear of nanotechnology this way:

Every time you come up with [new technology], and we’ve seen it with new technology like nanotechnology, there is a push back, people see us as dangerous. And the concern is not based on science, it’s really a few people thinking, it’s so small, it’s invisible, we can’t see what it’s doing, so it may be killing everything, even though we have been tested by international parties and we’re EPA registered It becomes worse now with all the blogs and Twitter, you get one piece of information or fault, and it’s all over the place.

George noted that this phenomenon is not unique to nanotechnology, but happens with any new technology.

This is not to say that none of the fears, or rather, the concerns, deserves any attention. In fact, small business manager Sarah from Company S advocated confronting the potential issues of environmental, health, and safety toxicology in nanomaterials. Darren from Company D admitted that some of the concerns are real; however, the challenge is differentiation. Darren explained his apprehension: “When you talk about nano, say nanoscale of one material versus nanoscale of another material, one could be completely innocuous from a health perspective and one could be incredibly toxic, but they’re all nanosized, so they all get lumped together.” Amanda agreed that although not all aspects of nanotechnology raise environmental, health, and safety issues, oftentimes “the whole industry gets painted with a broad brush.”

Victor from Company V noted that the fears of nanotechnology have lessened in the past decade. He recollected that a few years ago the term still had “a ‘science fictiony’ flavor to it,” but since the establishment of the National Nanotechnology Initiative ten years ago, he has seen a decrease in people’s concern about nanotechnology. Nevertheless, Adrian from Company A held that “there is still a lot of hoopla and nervousness about it.”

Themes #5 through #9 have described two ways in which a small nanotechnology firm can communicate clearly, honestly, and consistently about its identity and activities, and overcome the challenges facing it. The following four themes focus on the people aspect of the small business environment. While a small nanotechnology company can often use the reputation of its employees as leverage, it may need to deal with the issue of these employees’ scientific and intellectual intensity. Furthermore, a small

nanotechnology company's ability to maintain close and interpersonal relationship with its customers or partners can present both challenges and opportunities for the company.

Theme #10: The people are the company. In a small business, interviewees agreed, the people make the difference. The people are the face of the company and the right people bring in the right connections and the right experience. For example, Irena from Company I believed that the identity of the company “starts with the people; it’s all about the people.” Mary from Organization M agreed that the identity and consequently the reputation of a small company “all depends on who you bring into the company ... who you’ve got on your team, who they know, and what their network is.” Casey from Organization C also emphasized that the identity of a small company depends on “hiring the right people and choosing the right investors.”

In small companies, the chief executive officer and/or founder is often considered the face of the company. Brian from Company B said that he often leverages the “vitality and the smarts of the founders of the company.” He reported that customers, investors, and potential employees get excited when he presents the founders: “it worked the first couple of times, it’s been successful for me to do that.” Kim from Company K also used the same strategy: “our scientific founder has a big reputation, so we work off his reputation to get in the door; ... we usually get into places simply by mentioning his name.” Lillian from Company L said her board members played a similar role for her company; her board members are renowned in the industry, and their name-recognition gives Company L opportunities to make contacts where it otherwise might not make them.

The “people” aspect, however, is not limited to company founders or executives, but extends to other employees as well. On occasion, it may be necessary to screen and filter certain employees. For example, Nancy from Company N said that for her company, it is important to “make sure that employees that have customer contact are such that they project the right identity for the company.” She admitted, however, that although her company has technically competent people, they don’t necessarily always project the right identity for the company. For example, an employee may be highly technical but may not be able to communicate in nontechnical language. As many participants expressed, scientists often have trouble communicating in short, succinct, layperson-friendly language.

As this theme illustrates, the leaders and other employees can represent the identity of a small nanotechnology company. The use of its people as the face of a small company, however, may hurt the identity and reputation of the company if those people lack the necessary communication skills. Theme #11 discusses the scientific and intellectual intensity of the leadership as one challenge that a small company may need to overcome.

Theme #11: The scientific and intellectual intensity of the leadership. Many of the small firms in the field of nanotechnology were founded by scientists and/or academicians who also serve as the presidents and/or chief executive officers of these firms. The leaders at these companies, while highly intellectual, often lack needed communication skills. For example, Catherine from Company C said that nanotechnology companies are often “so densely packed with intelligence it’s kind of mind-blowing.” She noted that these companies may have employees who all graduated

from Ivy League Schools and have Ph.D.s, but “they’re so focused on science and technology” that they don’t really have anyone who has the marketing and communication skills.

Hank from Organization H said that this may be one reason why many small nanotechnology companies fail: “Typically the founders of these companies tend to be the scientists, or the researchers, and are very good at new technologies, but are not as good at marketing and communicating about the technologies.... I think that’s probably the side of the companies that struggles the most.” He further observed that the ability to market and communicate about the technology is a key factor in determining whether these companies succeed or fail.

On a related note, interviewees also cited personality issues as part of the challenge. Victor from Company V pointed out that “dealing with different egos and personalities is as much of a challenge as anything else.” Mary from Organization M gave a more detailed description of her view on personality issues in small nanotechnology companies:

I’ve seen several cases where there is a certain amount of arrogance. You’ve often got professors, who are very clever people, and they, how can I describe it ... they go into a meeting and they are trying to impress people with how clever they are. That’s something that works in the academic area, it absolutely does not work in the business area.... I’ve been in situations where we’ve absolutely blocked the professor from going and visiting customers because he absolutely scared them off.

Brian from Company B and Kim from Company K were able to use their scientific founders as the faces of their companies; Hank from Organization H and Mary’s descriptions of this issue, however, show that, although this strategy may work for one company, it may negatively influence the identity of another company.

In short, before a small company uses its people as the identity of the company, it needs to consider whether these people are able to project an identity that is consistent with the company or able to communicate consistently about the identity of the company. A small nanotechnology company, in addition to leveraging its people as the face of the company, also emphasizes informal and interpersonal interactions.

Theme #12: Informal and interpersonal interactions. Interviews with managers at small nanotechnology companies illustrate how they communicate identity and build reputation mostly through informal and interpersonal interactions with investors, customers, and partners. For example, Ursa from Company U explained that she doesn't use communication materials such brochures, newsletters, or e-mail blasts, because "what we do is much more on a personal level." Catherine from Company C reported that her CEO goes out and talks to the customers and partners in person: "Those are very one-on-one relationships, and that's the way it's always going to be." Catherine attributed the interpersonal relationship to the nature of the manufacturing industry in which her company works. Many of the manufacturing processes her company is trying to get involved in are expensive and difficult to interrupt, and thus if Company C is trying to convince a customer to include its materials in their manufacturing process, the company needs "proof points" and "data": "That's information that gets to be communicated externally; that's what you're going to show the [customers]," she said.

Further, due to the high-tech nature of nanotechnology, interviewees from small nanotechnology companies said that they often need to sit down in person with external stakeholders to explain what they do and demonstrate how they can add value to investors, customers, partners, and regulators. Jordan from Company J noted that "if you

just send material to customers, it almost always fails” because they don’t know what to do with the material or how to deal with the products. As Irena from Company I put it, “[We] go out there, hit the streets, talk about what we have.... [There’s] a lot of going and sitting down with folks because this is new technology.”

Based on the interview responses, informal and interpersonal interaction is a key to relationship-building in the small business environment. The emphasis on interpersonal interaction also means that managers in a small nanotechnology company must maintain a close relationship with customers. Although this can help with a company’s identity and reputation, it can also be a drawback for a company, as the next theme will demonstrate.

Theme #13: Close interaction with customers. Customers appreciate having the close interaction that a small nanotechnology firm can provide. This close interaction also allows a small company to cater to its customers’ unique needs. Nancy from Company N considered this to be particularly important because of the changing nature of the field, as highlighted in Theme #4. For Nancy’s company, having close interactions with customers means that the company is able to keep its customers when it has to undergo a change in product focus:

We have customers that we’re bringing forward with us ... from when we were just selling nanomaterials. So it’s important to bring those customers along with us as we go through every positioning period or change market focus, but we individually reach out to keep customers. I’ll travel there and visit them, specifically to reassure them that we’re committed to supporting their existing business.... Customers really appreciate that, they respond to that.

This opportunity is further attested by Adrian from Company A, who contended that his company can often react more quickly to a market change if necessary because it is “small, more nimble” than larger companies.

George from Company G also viewed close interactions with customers as an opportunity for a small business, but for slightly different reasons. In his case, he stated that the size of Company G not only allows the company to be more “nimble” but also that “our customers can talk to our top ranking executives, no problem.” He added that this means his executive team can receive feedback from customers directly without any “missed cues.” Furthermore, the customers often appreciate the fact that the company’s CEO may be on the phone with them if there is a problem.

At the same time, close interactions with customers can be time consuming, presenting an additional challenge for small business managers. This sentiment was expressed by Jordan from Company J, who reported he has to “tag the customers,” “talk to them multiple times,” and visit them. “In most cases, it’s a lot of time on the road,” he said. Ursa from Company U also admitted that having close interactions with customers also means that her time is often “stretched thin” because she does the majority of the traveling for her company.

Themes #10 through #13 illustrate that having the right people to project the right identity for a small company can be helpful, and that person-to-person relationships are highly valued but also time consuming in a small business. The remaining four themes together portray the need for a small nanotechnology company to stay focused and be strategic in how it uses its limited resources and, by extension, how it communicates identity and builds reputation. In particular, the interviewees emphasized that a small company needs to be strategic in its communication and activities and to build partnerships based on compatibility and feasibility.

Theme #14: Being strategic in your communication and activities. A small nanotechnology company, according to the interviewees, needs to be focused and strategic in all facets of its communication and activities. Small business managers need to focus on the right market, be involved with strategic partners, attend selective conferences and trade shows, and target the appropriate media with the right messages, especially because small companies have limited resources and personnel. For instance, Terrence from Company T contended that the biggest mistake a small company can make is lack of focus, because “if you don’t focus, you’re going to try to do too much and spend money.” He strongly disagreed with the perception that small companies fail because they run out of money; rather, he believed that small companies run out of money because they don’t focus. In the same vein, Darren from Company D said that he discourages his employees from attending nanotechnology conferences, choosing instead to focus on conferences that are meeting places for Company D’s customers and for the specific marketing applications the company is pursuing: these provide “a much bigger bang for the buck.”

Several interviewees also said that they try to be strategic in communicating with the media and sending out news releases. Peter from Company P said that his company tends to refrain from releasing news regarding any advancement or new products until they know the product or advancement is ready for market. He commented that a lot of other companies in the field “are saying a lot of different things,” and so his company tries to be “a calm spot in the storm.” George’s company (G) takes a similar approach; it doesn’t communicate on a mass scale and tries to avoid the idea of “just throw them up

on the wall and see what sticks.” He noted that his company tends to be very focused in terms of the message they communicate and the timing of that communication.

The interviews demonstrate that many small companies essentially talk too often without having much to say. George described one such example:

People roll their eyes [at] a company that is constantly turning out press releases about trial development and that “we’ve achieved this level of performance” or “we’ve achieved that level of performance,” and they come out with it too frequently. Then you don’t hear anything and they go off and do something else.

Catherine stated that often she has to remind herself and her team to “take a step back” and remember that they “can’t start talking about nothing,” which is a “huge issue” for a small nanotechnology company such as hers. “Most people think that if you get more attention, you’re going to get more customers,” but that, she said, is an inaccurate perception. Harry from Company H agreed with this strategy of being selective in communication and suggested that a company not talk until it has something substantial to talk about.

Interviewees described some successful communication strategies for a small company. For example, Gerry from Organization G recommended that a company be sure that when it disseminates information externally, such information is targeted towards a specific segment of the industry. Kyle from Organization K stated that a small company must “get into the heads of the customer” and be able to connect with customers. Victor from Company V shared what he considered to be a successful communication strategy: “Clearly define your audience, know their care-about, tailor your message specific to what those care-about are, don’t be overly optimistic but be specific about what you can accomplish, when you can accomplish it, and how you’re going to accomplish it.” Casey from Organization C put it simply by saying that the

number one strategy for a small company is to really make sure it has done all its “homework.”

In short, a small company needs to stay focused and be strategic in every facet of its communication and related activities. As mentioned earlier in the section, the need to stay focused and strategic is important, because small companies have constraints that large ones do not, which leads to the next theme.

Theme #15: Lack of resources and personnel. The previously mentioned theme of being strategic in communication and activities is especially important because it addresses a challenge that faces most small companies: the lack of resources and personnel. For example, Irena from Company I noted that one of the biggest challenges she and her company face is managing and prioritizing what they’re working on. There are many opportunities out there in many different industries, but if they get stretched too thin, they won’t be able to “project the identity and reputation” they desire. Therefore, she continued, it’s important to keep a tight focus within the company. Adrian from Company A observed that limited resources are mostly related to personnel rather than to funding—in terms of the communication side of things, he is a “one-man band.”

For Peter from Company P, the challenge presented itself somewhat differently. Within the company, he said, the challenge has been having to “[fight] for a budget large enough to make bigger noise” for external communication; externally, the challenge has been identifying the right place to put the company’s message. That has been difficult because “there are a lot of different choices for us...; there are a lot of different answers” to the questions of where and who the company should target. The lack of personnel really “limits us in terms of what we can do,” he concluded.

Despite the limited resources and personnel, a small company can still successfully communicate its identity and build its reputation if it can stay focused and strategic in what and how it communicates. Another way for a small company to deal with the challenges of limited resources and personnel is to build partnerships based on compatibility and feasibility, which is the next theme.

Theme #16: Building partnerships based on compatibility and feasibility.

Interviewees reported that appropriate partnerships can provide small companies with legitimation and credibility, as well as access to distribution channels and other resources. Peter from Company P said that partnerships help his company because they can provide the personnel and resources needed to promote his products. He noted that he and his team really “leverage other companies’ branding and marketing capabilities and sort of tag [their product] onto what it [the partnering firm] is already doing.” Mary from Organization M also mentioned the same kind of strategy, pointing out that a small company “can almost never afford to create a supply chain” to reach end users; it can, however, develop a partnership arrangement and share revenues with other companies to enable it to reach end users sooner and more efficiently. Frances (Company F) develops partnerships precisely for this purpose:

We partner only with very large companies. The purpose of partnership is really one purpose, and that is distribution. They have to have a huge sales force and a huge engineering force, technical sales force on the ground, worldwide. If they don’t have that, I’m not interested in partnering with them. If they do, and they think we can help them on the nano side, then it’s a good partnership, usually. We haven’t lost one yet.

Irena and Company I also have partnerships for the same reason. For Company I’s “first killer application,” it partnered with a large company to “leverage their sales and marketing expertise as well as their infrastructure throughout the world,” a strategy she

described as being quite successful. Catherine and Company C benefit from their partnerships in a different way; she reported that being associated with large established companies helps her company's reputation because it shows that "our technology is real, that we're not one of those small nanotechnology companies that's going to disappear this year, next year, or next week." The partnerships, she said, prove that her company is in it for the "long haul."

A company can optimize the benefits it may gain by making sure a specific partnership is compatible and feasible. For example, in terms of forming partnerships with investors, Natalie from Organization N suggested that a small company deal with "strategic investors" who would "want to utilize the technology for their own products in the future" rather than just a "financial investor." Similarly, Lillian from Company L stated that she and her company would not look for an investor to invest directly in Company L, but rather for investors that "are amenable to investing in a program that would be put into a subsidiary company where [Company L] would have ownership as would the investor."

Other interviewees also shared successful strategies for forming partnerships. Based on his experience, Brian from Company B identified six things to consider when a company selects its partners: 1) "find partners that don't constrain you"; 2) "find partners that will validate what you're doing"; 3) "find partners that will give you credibility with other potential partners"; 4) "find partners that give you credibility with your investors"; 5) "find partners that are not going to steal your [intellectual property]"; and 6) "make sure you don't pick too many partners because then you dilute yourself."

Once a company has identified its potential partners, it also needs to be strategic in terms of communicating with those potential partners. As Victor from Company V commented, before approaching any potential partners, a company and its team need to understand what the potential partners view as their areas of expertise and tailor their messages to “resonate with what they feel their areas of expertise are.” Finally, Terrence from Company T described how he has been able to convince potential partners of the benefits of the relationship: “speak with the data.” He reported that he and his team don’t just go to a potential partner with a concept and say “if you take A and B, we think it equals C,” but rather, they would say “we took A and B, and we improved the performance of C. You’re a leader in C category, and we think that we can help you capture more market share, get more performance and more market.” He concluded that when he has been able to show potential partners the data, the partners almost always took a strong interest in partnering with his company.

Based on various participants’ accounts, partnerships can help communicate a small company’s identity and build its reputation by providing additional financial and human resources and by legitimizing and providing credibility to the activities of the small company. Participants also noted that it was often beneficial for them to announce partnerships with larger, more established companies because it helped validate their companies’ technologies and activities. There is, however, one challenge associated the use of partnership: the proprietary nature of the field.

Theme #17: Proprietary nature of the field. While partnerships can often assist a small business in many ways, the proprietary nature of the field of nanotechnology often limits companies in what they can say about their relationships. In some cases, a

small company may not even be able to announce the establishment of a new partnership per request the partners. Catherine from Company C said that she has to be very careful when talking about a partnership because she and her company can't say anything without permission of their partners. Oftentimes she's limited to announcing a new partnership by using a generic description such as "we supply a product to the leading manufacturer of so and so industry." Sara from Company S also commented that a majority of the joint development collaborations her company has with other companies are confidential. Terrence's (Company T) interview responses reflected this challenge as well: "We could never announce the partnership because we're under [non-disclosure agreements]."

Regardless of the challenges presented by the proprietary nature of the field and these relationships, unannounced partnerships are not necessarily without benefits. Although Catherine felt constrained by this challenge, she still values these partnerships because there's always "strength in the association." Terrence looked at the brighter side of this issue and said that his company relies on these partners to validate and optimize his company's products in their labs. Further, his company is still able to "let their [the partners'] channels and networks bring the products to market." George from Company G described a strategy he has used to circumvent the issue when he's negotiating a contract with a partner or customer:

There's a lot of give and take, and I always leave one thing in my pocket... [When] I have to give something up toward the end of closing the contract, often ... I'll agree to this, but in return I want to be able to do a press release announcing our relationship. And I've successfully done that ...; that's really, really valuable.

While this strategy may not work in all situations, it is a possible solution to the challenge.

The results of my interpretive analysis of interviews identified 17 different themes related to the identity and reputation management activities of small nanotechnology companies. The themes were grouped into four main categories: 1) “say what you do and do what you say”; 2) “communicate clearly, honestly, and consistently”; 3) “it’s company-to-company business, but it’s person-to-person relationship”; and 4) “stay focused and be strategic.” Within each category, individual themes illustrate how a company can create identity and build reputation and also describe the challenges and opportunities it may face in the process of creating identity and building reputation. The next section turns its attention to the quantitative analysis of organizational identity and corporate reputation.

Quantitative Analysis of Organizational Identity

This section describes the findings from the quantitative analysis of organizational identity using DICTION. First, the section provides a description of sampling and recording units. Then, it details the results from the analysis of the 23 companies individually and the analysis of the companies collectively.

Description of Sampling and Recording Units

I collected a total of 592 company documents from the 23 companies to use as sampling units. Company Web pages included the main page, “Home,” or the “About Us” pages, which may include pages that provide an overview or history of the company, as well as its mission, vision, and values, if any (n=57). In addition, news releases, annual reports, and newsletters were also collected (n=535). News releases posted on the

corporate websites or shared by the participants were included in the analysis. In three cases, participants requested that news releases from particular years be excluded because they did not align with the company's current identity. Although three out of the 23 companies shared additional corporate documents, such as product brochures and PowerPoint presentations, these were excluded from the sample. After careful review, I decided that these documents should be excluded because they consisted mostly of graphical presentations and included highly technical language, which makes it difficult to extrapolate value-relevant descriptors.

The communication materials used by the 23 companies deserve some discussion here. As outlined in chapter 4, the list of documents in Appendix D was shared with the interviewees to see if any of them were used by the company. The only communication material used by all 23 companies was their website, which in fact, was the only material that all companies were willing to share (as these are available on the Internet and therefore accessible to the general public). The second most common material used by companies was news releases. Five companies did not have news releases or were not willing to share them. In general, the number of news releases, or the lack of news releases, does not seem to be dictated by the company's age. Newsletters and email alerts were also common communication materials; all but one company was able to share its newsletter. Many communication materials include proprietary information limiting the materials that companies could share because of non-disclosure agreements with their partners and customers. Therefore, the corporate content included in this dissertation research consisted of web pages providing an overview of the company (e.g., home pages or "about us" pages), news releases, annual reports, and newsletters.

Based on the procedure described above, the researcher identified a total of 2,740 recording units for analysis. The recording units for each of the 23 companies ranged from 2 to 565 units, with an average of 119 units per company ($SD = 146$). Table 6 shows a summary of the recording and sampling units for the 23 companies along with percentages of the total sample.

Table 6

Summary of Recording and Sampling Units

Company	Recording Unit		Sampling unit	
	%	N	%	n
Company A	0.58%	16	0.51%	3
Company B	0.07%	2	0.34%	2
Company C	2.48%	68	2.71%	16
Company D	0.66%	18	0.85%	5
Company E	20.62%	565	22.84%	135
Company F	18.28%	501	16.92%	100
Company G	4.85%	133	4.74%	28
Company H	5.91%	162	5.08%	30
Company I	5.00%	137	2.88%	17
Company J	0.62%	17	0.85%	5
Company K	0.40%	11	0.51%	3
Company L	2.52%	69	2.03%	12
Company M	4.60%	126	6.26%	37
Company N	1.42%	39	1.52%	9
Company O	4.67%	128	3.72%	22
Company P	5.69%	156	2.03%	12
Company Q	3.10%	85	3.89%	23
Company R	0.29%	8	0.51%	3
Company S	7.12%	195	6.43%	38
Company T	7.96%	218	11.00%	65
Company U	1.90%	52	2.20%	13
Company V	0.26%	7	0.17%	1
Company W	0.99%	27	2.20%	13
Total	100.00%	2740	100.17%	592

Note. Total percentages do not add up to exactly 100 due to rounding.

The recording units were saved as rich text format (rft) files and were loaded into the DICTION 6.0 program. Dictionaries for the 36 values were entered manually in DICTION. Then, each recording unit was analyzed using the customized dictionaries.

Table 7 below summarizes the ranges and measures of central tendency for the number of words analyzed per recording unit for each company.

Table 7

Number of Words Analyzed Per Recording Unit

Company	Range	Mean	SD
Company A	17-100	48	24
Company B	27-50	39	16
Company C	23-157	67	27
Company D	16-129	70	30
Company E	15-405	71	34
Company F	22-270	67	33
Company G	12-175	81	35
Company H	27-168	77	30
Company I	19-161	76	32
Company J	8-100	42	27
Company K	43-129	65	26
Company L	16-194	77	35
Company M	21-167	75	34
Company N	34-282	89	46
Company O	21-152	58	22
Company P	20-418	64	44
Company Q	19-149	61	25
Company R	11-141	57	46
Company S	16-164	66	23
Company T	20-223	78	40
Company U	24-369	74	53
Company V	26-83	46	21
Company W	36-101	63	18

Individual Analysis by Company

This section details the results of the analysis of each company's communicated values. On average, 1,130 value-related words occurred per company ($SD = 274$). Company B had the least number of recording units ($n = 2$) and of value occurrences ($n = 17$) and Company E had the greatest number of recording units ($n = 565$) and value occurrences ($n = 4938$). Although the total number of words analyzed varied greatly, there appeared to be no dramatic differences among the percentages of value occurrences across the companies. Results showed a mean of 13.52% ($SD = 2.66\%$) of the total words analyzed per company were value-related words. Table 8 summarizes the percentage of value occurrences for each company and shows the most commonly communicated identity values for each company, determined based on the values with the highest percentages.

Table 8

Percentage of Value-Related Words and Most Communicated Identity Values

Company	Total words analyzed (n)	Value-related words (%)	Most Communicated Identity value
Company A	764	11.78	Social recognition
Company B	77	16.88	Sense of accomplishment
Company C	4538	11.57	Helpful
Company D	1259	12.39	Helpful
Company E	40340	12.24	Broadminded; Imaginative
Company F	33742	10.2	National security
Company G	10724	15.28	Broadminded; Helpful
Company H	12407	11.45	Helpful
Company I	10354	12.86	True friendship
Company J	714	11.34	Helpful
Company K	714	18.49	True friendship
Company L	5291	10.28	True friendship
Company M	9395	11.38	Imaginative
Company N	3466	9.49	Capable
Company O	7418	13.33	True friendship
Company P	9956	12.85	Ambitious
Company Q	5180	14.48	Ambitious
Company R	459	18.3	Imaginative
Company S	12743	16.46	Imaginative
Company T	16953	16.84	Ambitious
Company U	3779	12.3	Social recognition
Company V	320	14.38	Imaginative
Company W	1697	16.49	Helpful
Mean (SD)	8,360(10,301)	13.52(2.66)	

Relative percentages for the 36 values were calculated for the 23 companies.

Relative percentages were calculated taking the number of a specific value occurrence divided by all value occurrences for each company. The use of relative percentages allows for the comparison of value occurrences across all companies regardless of the number of recording units per company. The relative percentages for the values communicated by the companies are shown in Table 9 below.

Table 9

Relative Percentage of Communicated Values for Individual Companies

Values	Company A		Company B		Company C		Company D		Company E		Company F		Company G		Company H		Company I		Company J		Company K		Company L	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Exciting Life	1%	1	8%	1	6%	31	3%	5	6%	313	3%	87	5%	85	8%	109	4%	56	11%	9	7%	9	6%	32
Sense of Accomplishment	2%	2	23%	3	5%	24	7%	11	5%	256	2%	70	3%	56	3%	42	3%	38	2%	2	4%	5	5%	29
National Security	1%	1	0%	0	1%	3	0%	0	1%	55	11%	383	3%	42	0%	6	1%	10	4%	3	0%	0	5%	25
Social Recognition	13%	12	0%	0	6%	31	10%	15	9%	446	6%	208	8%	129	7%	93	8%	109	4%	3	6%	8	8%	44
True Friendship	3%	3	8%	1	14%	72	13%	21	8%	373	6%	192	8%	137	5%	69	16%	209	11%	9	14%	19	17%	90
Ambitious	7%	6	8%	1	11%	56	5%	8	9%	437	7%	258	5%	81	8%	107	12%	156	12%	10	11%	14	3%	16
Broadminded	2%	2	8%	1	4%	20	4%	6	11%	556	6%	197	9%	148	7%	95	4%	57	7%	6	9%	12	3%	16
Capable	8%	7	0%	0	5%	26	4%	7	1%	74	4%	153	6%	99	2%	24	4%	57	5%	4	3%	4	3%	14
Helpful	8%	7	8%	1	15%	79	15%	24	8%	400	9%	297	9%	145	20%	282	12%	159	14%	11	9%	12	12%	65
Imaginative	7%	6	8%	1	9%	46	10%	16	11%	566	4%	143	5%	85	6%	89	5%	63	5%	4	8%	10	3%	18
Logical	7%	6	0%	0	6%	31	3%	5	3%	142	5%	181	5%	90	7%	105	5%	63	2%	2	12%	16	6%	31

Values	Company M		Company N		Company O		Company P		Company Q		Company R		Company S		Company T		Company U		Company V		Company W	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Exciting Life	5%	54	11%	37	5%	49	4%	50	8%	58	8%	7	5%	115	5%	134	5%	25	0%	0	11%	23
Sense of Accomplishment	6%	69	11%	36	6%	55	6%	76	6%	46	2%	2	4%	78	5%	133	4%	19	9%	4	6%	12
National Security	4%	41	0%	0	0%	4	6%	71	3%	26	0%	0	1%	24	2%	64	0%	2	0%	0	2%	4
Social Recognition	6%	62	10%	32	9%	93	7%	84	8%	60	4%	3	8%	158	8%	218	13%	60	15%	7	5%	10
True Friendship	5%	51	4%	12	14%	134	13%	160	9%	71	12%	10	9%	186	7%	186	6%	27	0%	0	11%	24
Ambitious	10%	111	5%	15	10%	96	18%	236	15%	111	12%	10	10%	220	19%	549	5%	24	13%	6	9%	20
Broadminded	4%	39	8%	25	5%	47	7%	93	3%	25	6%	5	2%	52	5%	133	6%	26	4%	2	6%	13
Capable	5%	56	13%	43	7%	70	3%	34	5%	39	2%	2	2%	42	4%	127	4%	18	11%	5	3%	7
Helpful	12%	128	11%	37	10%	101	7%	84	8%	59	11%	9	10%	208	12%	341	12%	57	13%	6	16%	33
Imaginative	13%	135	6%	20	7%	70	3%	35	6%	46	13%	11	21%	443	4%	107	10%	47	17%	8	7%	15
Logical	4%	40	1%	4	2%	23	4%	55	2%	14	4%	3	5%	107	4%	121	10%	45	0%	0	3%	7

Note. Instrumental values are italicized. Values with relative percentages of 10% or more are bolded. Values with relative percentages of less than 10% across all companies are excluded here.

Based on the results, there are two ways to identify the five values that were most frequently communicated by the individual companies. One is by summing the number of companies that have relative percentages of 10% or higher for each value. Viewed in this way, the top values communicated by the individual companies were as follows: “helpful” ($n = 15$), “ambitious” ($n = 12$), “true friendship” ($n = 10$), “imaginative” ($n = 7$), and “social recognition” ($n = 5$). Another is by looking at the number of companies for which a value had the highest relative percentage, in which case the top five communicated values were as follows: “helpful” ($n = 5$), “true friendship” ($n = 4$), “imaginative” ($n = 4$), “ambitious” ($n = 3$), and “social recognition” ($n = 2$). Both approaches arrived at the same top five values, although the rankings are slightly different. Table 10 below shows the ranking of the values.

Table 10

Ranking of the Top Communicated Values

Values	Relative Percentage > 10% (No. of companies)	Most communicated value (No. of companies)
<i>Helpful</i>	15	5
<i>Ambitious</i>	12	3
True Friendship	10	4
<i>Imaginative</i>	7	4
Social Recog.	5	2
Exciting Life	3	0
Sense of Accompl.	2	1
<i>Capable</i>	2	1
<i>Logical</i>	2	0
National Security	1	1
<i>Broadminded</i>	1	0

Note. Instrumental values are italicized. Values with relative percentages of less than 10% across all companies are excluded here. Also, for the calculations of most communicated value, the total number of companies may not add up to 23 because values that had equal relative percentages with at least one other value were not counted as having the most mentions.

Collective Analysis of Companies

The data for all 23 companies were analyzed collectively by taking the mean relative percentages of the companies for each of the 36 communicated values. Results showed that collectively, the five most frequently communicated values, ranking from highest to lowest mean relative percentage, were as follows: “helpful” (11.27%), “ambitious” (9.73%), “true friendship” (9.16%), “imaginative” (8.18%), and “social recognition” (7.63%). Note that results from the individual analysis of the companies described in the previous section showed the same top five communicated values. The results suggest that small nanotechnology companies value both instrumental and terminal values. Table 11 shows the mean relative percentages of communicated values for the 23 companies collectively.

Table 11

Mean Relative percentages of 36 Communicated Values for All 23 Companies

Values	%	Values	%	Values	%
<i>Helpful</i>	11.27%	<i>Intellectual</i>	2.94%	<i>Courageous</i>	0.62%
<i>Ambitious</i>	9.73%	Mature Love	2.53%	Inner Harmony	0.60%
True Friendship	9.16%	<i>Obedient</i>	1.98%	Salvation	0.40%
<i>Imaginative</i>	8.18%	National Security	1.95%	<i>Honest</i>	0.33%
Social Recognition	7.63%	Comfortable Life	1.95%	<i>Forgiving</i>	0.23%
Exciting Life	5.88%	Equality	1.44%	Pleasure	0.21%
<i>Broadminded</i>	5.64%	<i>Clean</i>	1.22%	Happiness	0.21%
Sense of Accompl.	5.62%	Family Security	1.20%	<i>Independent</i>	0.18%
<i>Capable</i>	4.60%	<i>Self-Control</i>	1.15%	<i>Polite</i>	0.16%
<i>Logical</i>	4.40%	Freedom	0.74%	Self-Respect	0.13%
Wisdom	3.19%	World of Beauty	0.70%	<i>Cheerful</i>	0.09%
<i>Responsible</i>	3.08%	<i>Loving</i>	0.66%	World of Peace	0.00%

Note. Instrumental values are italicized.

The values “helpful,” “ambitious,” and “true friendship” are present in the following excerpt taken from one company’s communication material:

We have been very successful in reaching key milestones for the first two stages of our strategy for *value* [helpful] creation. [The Company's] customer-defined product development cycle of about eight weeks makes us extremely agile and gives us a major advantage over our direct competitors who are burdened with cycle times extending to well over a year. [The Company's] next stage of *growth* [ambitious], full *commercialization* [ambitious] via spin-outs, *joint* [true friendship] ventures and other *collaboration agreements* [true friendship], will be driven by ... a *growing* [ambitious] top management team. (Italics added)

In the excerpt above, the company emphasizes “value creation” and tries to communicate their ability to be helpful to their customers by making sure their products are tailored to customers’ needs. The mention of words such as “joint,” “collaboration,” and “agreement” are all indicators of “true friendship.” And by highlighting their ability to grow with the mention of “growth” and “growing,” the company expresses the “ambitious” value.

Many of the companies highlighted the importance of establishing “partnerships,” joining “consortiums,” and signing “agreements” with other organizations, thereby communicating the value “true friendship.” The value “helpful” was often expressed by the companies in terms of how they can “add value” or “bring value” to their partners, customer, or the market. The following are some ways that “helpful” is shown using the word “value”:

- Our [products] are already contributing to new innovations in product capability and value.
- [The products] are two examples of how nanotechnology resolves fundamental challenges facing printed electronics and creates value for designers and manufacturers of next-generation products.
- [The company] develops and implements corporate processes for delivering client value.

The “ambitious” value is articulated in the corporate materials via phrases such as “compete in the global market,” “future product growth,” “expand our reach,” “growing sales base,” and “rapid growth potential.”

Another example demonstrates how the “imaginative” and “social recognition” values were communicated through the corporate materials. In the following excerpt, the company has received an award:

[T]he R&D 100 Awards has identified *revolutionary* technologies newly introduced to the market.... Winners of the R&D 100 Awards are selected by an independent judging panel and the editors of R&D Magazine. [The Company] will be *recognized* at the R&D 100 Awards Banquet. (Italics added)

In this excerpt, the “imaginative” value is demonstrated by the presence of the word “revolutionary.” And the receipt of an award is a form of “social recognition,” as indicated by the word “recognized.” In other corporate materials, “imaginative” can also be expressed by phrases such as by “create entirely new products,” “innovative research,” “a lead innovator in ...” and “lead discovery of” Finally, phrases such as “world’s largest and most important,” “proven leadership,” and “a leading manufacturer” are indicative of the “social recognition” value.

Content Analysis of Corporate Reputation

This section describes the findings from the content analysis of corporate reputation dimensions and attributes using human coding. This section begins with a description of the sample. As with the results for the quantitative analysis of identity, this section details results from the reputation analysis of the 23 companies both individually and collectively.

Description of Sample

Using the procedures described in chapter 3, a total of 1,459 media articles were sampled. All the companies but one (Company I) had fewer than 150 articles ($n = 537$). Instead of taking all 537 articles, the researcher took a systematic sampling of 25% of the articles ($n = 134$) for each company. Then, articles that were duplicates or deemed irrelevant by the coders (see “Delete Variables” in Appendix I) were excluded from analysis. As a result, a total of 933 articles were used as the recording units. The recording units for the 23 companies ranged from 0 to 141 units. Table 12 provides a summary of the articles coded.

Table 12

Summary of Total Articles Coded

Company	%	n
Company A	4.39%	41
Company B	0%	0
Company C	5.36%	50
Company D	3.11%	29
Company E	1.29%	12
Company F	8.47%	79
Company G	7.40%	69
Company H	15.11%	141
Company I*	12.86%	120
Company J	0.64%	6
Company K	3.54%	33
Company L	3.43%	32
Company M	1.29%	12
Company N	1.50%	14
Company O	9.11%	85
Company P	0.86%	8
Company Q	0.75%	7
Company R	0.21%	2
Company S	9.86%	92
Company T	7.29%	68
Company U	0.21%	2
Company V	1.71%	16
Company W	1.61%	15
Total	100%	933

Note. Company I was sampled.

Over half of the articles coded were feature news (51.5%; $n = 481$) and 46.9% of the articles were hard news ($n = 438$). A little more than 1% ($n = 12$) of the articles were opinion or editorial pieces, and a single article was a review. The dominance of the companies mentioned in the articles was distributed almost evenly among the three levels of dominance. The focal companies had a dominant presence in 34.5% ($n = 322$) of the article, an average presence in 29.3% ($n = 272$) of the articles, and were mentioned in passing in 36.3% ($n = 339$) of the articles.

Results from the news value variable demonstrated that the top reason companies were mentioned in these articles was because of the attribute of “innovation,” which covers 36.9% of the articles ($n = 344$). The attribute “financial performance” followed “innovation” as the news value for which the companies are present in the articles, with 21.2% ($n = 198$). Cooperative arrangement and leadership were the news topics for a similar number of articles, 15% ($n = 140$) and 12.9% ($n = 120$), respectively.

In 18.4% ($n = 172$) of the articles dominated by the news topic of cooperative arrangements or that discussed in some way an association, the relationship was most often between a small nanotechnology company and a non-nanotechnology company. The other types of association mentioned fell far behind the most common type of association in terms of percentages of articles. Small nanotechnology companies established some type of a relationship with local or federal government in 3.5% ($n = 33$) of the articles, with academic organizations in 2.4% ($n = 22$), with other nanotechnology companies in 1.5% ($n = 15$), with nonprofits in 1.1% ($n = 9$), and with research institutes in 1.0% ($n = 9$).

Out of the 933 articles, 4.4% ($n = 41$) were specifically related to a company's chief executive officer. In all of the articles specific to CEOs, the competence characteristic was present. The other characteristics, including integrity, reliability, charisma, and personal characteristics, were rarely, if ever, mentioned.

Finally, 30 reputation attributes were coded based on whether they were mentioned in a positive or a negative tone for the 23 nanotechnology companies. Results showed that in general, the companies were mentioned positively in relation to the reputation attributes when the attributes were present in the news articles. The positive and negative sentiments about the reputation attributes are summarized in Table 13 below.

Table 13

Evaluation of Reputation Attributes

Categories	Attributes	Positive		Negative	
		n	%	n	%
Leadership	Has a clear vision for its future	56	6.0%	1	0.1%
	Has strong and credible leaders	65	7.0%	1	0.1%
	Has leaders who are visible and accessible	36	3.9%	0	0.0%
	Makes difficult business decisions in a timely way	3	0.3%	0	0.0%
Organization	Has an effective system of governance	3	0.3%	0	0.0%
	Maintains an entrepreneurial spirit	11	1.2%	0	0.0%
	Is responsive to the demands of its constituents	3	0.3%	0	0.0%
	Adapts quickly to change	0	0.0%	0	0.0%
	Invites open and frank communications	4	0.4%	0	0.0%
Performance	Consistently delivers strong bottom line results	10	1.1%	14	1.5%
	Shows strong prospects for future growth	230	24.7%	9	1.0%
	Is effectively focused on creating stakeholder value	12	1.3%	3	0.3%
	Tends to out-perform its competitors	11	1.2%	0	0.0%
	Lives up to its promises and commitments	0	0.0%	0	0.0%
Products or Services	Is a leader in innovation	168	18.0%	0	0.0%
	Makes high quality products and delivers quality	38	4.1%	0	0.0%
	Stands behind its products and services	19	2.0%	0	0.0%
	Makes products and delivers services that improve	18	1.9%	0	0.0%
Social Responsibility	Helps improve local communities	8	0.9%	0	0.0%
	Acts responsibly to protect the environment	10	1.1%	0	0.0%
	Supports good causes and organizations	5	0.5%	0	0.0%
	Is committed to developing sustainable business	13	1.4%	0	0.0%
	Demonstrates honesty and integrity in its actions	2	0.2%	3	0.3%
Workplace	Rewards its employees fairly	0	0.0%	0	0.0%
	Hires the best employees	20	2.1%	0	0.0%
	Is a good company to work for	6	0.6%	0	0.0%
	Encourages employee growth & development	0	0.0%	0	0.0%
	Recognizes and supports employee diversity	0	0.0%	0	0.0%
	Values employee safety	2	0.2%	1	0.1%
	Encourages development of women and minorities	0	0.0%	0	0.0%

Note. *N* refers to the number of mentions, rather than the number of articles because more than one attribute can be present in an article. The percentages were calculated by dividing the number of mentions of each attribute by total number of mentions across all attributes.

Notice that the attribute “consistently delivers strong bottom line results” has the largest percentage of negative mentions, relatively speaking (1.5%; $n = 14$), followed by “shows strong prospects for future growth” (1.0%; $n = 9$). The following two sections detail the result for the individual and collective reputation attribute analysis of the 23 companies.

Individual Analysis of Companies’ Reputation Attributes

Relative percentages for the 30 reputation attributes were calculated for each of the 23 companies. As explained previously, the use of relative percentages allows for the comparison of reputation attributes across all companies regardless of the number of recording units per company. The relative percentages for the reputation attributes present in the media content are shown in Table 14 below. Note that the values reputation attributes are abbreviated in the table. The unabbreviated descriptions of the attributes are listed in Table 13.

Table 14

Relative Percentage of Reputation Attributes for Individual Companies

Reputation Attributes	Company A		Company B		Company C		Company D		Company E		Company F		Company G		Company H		Company I		Company J		Company K		Company L	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Leadership-clear vision	5%	1	0%	0	4%	1	5%	2	33%	4	9%	8	5%	3	0%	0	11%	15	0%	0	29%	8	0%	0
Leadership-visible	0%	0	0%	0	0%	0	8%	3	0%	0	22%	19	2%	1	0%	0	2%	3	0%	0	0%	0	0%	0
Leadership-strong	0%	0	0%	0	9%	2	8%	3	8%	1	10%	9	5%	3	0%	0	5%	7	0%	0	32%	9	0%	0
Performance-consistently	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	17%	23	0%	0	0%	0	0%	0
Performance-prospects	15%	3	0%	0	35%	8	24%	9	50%	6	33%	28	31%	19	46%	16	35%	47	50%	1	18%	5	33%	10
Performance-stakeholder	0%	0	0%	0	9%	2	0%	0	0%	0	1%	1	0%	0	0%	0	4%	5	0%	0	0%	0	0%	0
Performance-competitors	0%	0	0%	0	0%	0	0%	0	0%	0	2%	2	3%	2	0%	0	1%	1	0%	0	0%	0	10%	3
Products-innovation	35%	7	0%	0	9%	2	32%	12	8%	1	6%	5	43%	26	26%	9	11%	15	50%	1	21%	6	27%	8
Products-quality	15%	3	0%	0	9%	2	0%	0	0%	0	0%	0	2%	1	0%	0	2%	3	0%	0	0%	0	0%	0
Products-improvements	25%	5	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	1%	1	0%	0	0%	0	23%	7
SocialResponsibility-communities	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	6%	2	1%	1	0%	0	0%	0	0%	0
SocialResponsibility-environment	0%	0	0%	0	4%	1	11%	4	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0
SocialResponsibility-sustainable	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	2%	1	0%	0	0%	0	0%	0	0%	0	0%	0
Workplace-best	0%	0	0%	0	17%	4	0%	0	0%	0	1%	1	0%	0	14%	5	0%	0	0%	0	0%	0	7%	2
Reputation Attributes	Company M		Company N		Company O		Company P		Company Q		Company R		Company S		Company T		Company U		Company V		Company W			
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Leadership-clear vision	0%	0	10%	1	10%	9	0%	0	0%	0	0%	0	3%	3	3%	1	0%	0	8%	1	1%	0		
Leadership-visible	0%	0	0%	0	2%	2	0%	0	0%	0	33%	1	3%	3	0%	0	0%	0	31%	4	3%	0		
Leadership-strong	0%	0	0%	0	16%	14	0%	0	0%	0	33%	1	13%	15	0%	0	0%	0	15%	2	2%	0		
Performance-consistently	0%	0	0%	0	0%	0	0%	0	0%	0	11%	1	0%	0	0%	0	0%	0	0%	0	0%	0		
Performance-prospects	64%	9	50%	5	26%	22	31%	5	44%	4	33%	1	14%	17	47%	15	0%	0	15%	2	2%	7		
Performance-stakeholder	0%	0	0%	0	1%	1	19%	3	0%	0	0%	0	3%	3	0%	0	0%	0	0%	0	0%	0		
Products-innovation	14%	2	10%	1	16%	14	19%	3	44%	4	0%	0	33%	39	16%	5	50%	1	31%	4	3%	1		
Products-quality	0%	0	30%	3	1%	1	0%	0	0%	0	0%	0	18%	22	6%	2	50%	1	0%	0	0%	0		
Products-improvements	0%	0	0%	0	2%	2	0%	0	0%	0	0%	0	3%	3	0%	0	0%	0	0%	0	0%	0		
SocialResponsibility-communities	14%	2	0%	0	2%	2	6%	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0		
SocialResponsibility-environment	0%	0	0%	0	2%	2	0%	0	0%	0	0%	0	1%	1	6%	2	0%	0	0%	0	0%	0		
SocialResponsibility-sustainable	0%	0	0%	0	1%	1	0%	0	0%	0	0%	0	6%	7	13%	4	0%	0	0%	0	0%	0		
Workplace-best	0%	0	0%	0	7%	6	0%	0	0%	0	0%	0	1%	1	3%	1	0%	0	0%	0	0%	0		

Note: Reputation attributes with relative percentages of 10% or more are bolded. Reputation attributes with relative percentages of less than 10% across all companies are excluded here.

Results from summing the number of companies that have relative percentages of 10% or higher for each reputation attribute showed that the top five reputation attributes present in the media content are “shows strong prospects for future growth” ($n = 20$), “is a leader in innovation” ($n = 17$), “has strong and credible leaders” ($n = 6$), “has a clear vision for its future” ($n = 5$), and “makes high quality product and delivers quality services” ($n = 4$). Similarly, when the top ranking reputation attributes were calculated using the number of companies that had the highest relative percentage for a particular reputation attribute, three of the five aforementioned reputation attributes—“shows strong prospects for future growth” ($n = 11$), “is a leader in innovation” ($n = 4$), and “has strong and credible leaders” ($n = 1$)—ranked as the most-mentioned attributes. The ranking of the reputation attributes can be seen in Table 15.

Table 15

Ranking of the Top Mentioned Reputation Attributes

Reputation Attribute	Relative percentage > 10% (No. of companies)	Most-mentioned attribute (No. of companies)
Performance-prospects	20	11
Products-innovation	17	4
Leadership-strong	6	1
Leadership-clear vision	5	0
Products-quality	4	0
Leadership-visible	3	0
Performance:-consistently	2	0
Performance-competitors	2	0
Products-improve lives	2	0
Workplace-best	2	0
Performance-stakeholder	1	0
Social Responsibility-communities	1	0
Social Responsibility-environment	1	0
Social Responsibility-sustainable	1	0

Note. Reputation attributes with relative percentages of less than 10% across all companies are excluded here. Also, for the calculations of most-mentioned attribute, the total number of companies may not add up to 23 because attributes that had equal relative percentages with at least one other attribute were not counted as having the most mentions.

Collective Analysis of Companies' Reputation Attributes

The collective reputation analysis of the companies was done using the mean relative percentages for each of the 30 reputation attributes. Results demonstrated that collectively, the five most-mentioned reputation attributes are as follows: “shows strong prospects for future growth” (33.27%), “is a leader in innovation” (22.21%), “has leaders who are visible and accessible” (6.76%), “has a clear vision for its future” (5.91%), and “makes high quality product and delivers quality services” (5.80%). Table 16 below

summarizes the mean relative percentages of reputation attributes for the 23 companies collectively.

Table 16

Mean Relative Percentages of Reputation Attributes for All 23 Companies

Reputation Attribute	%
Performance: Shows strong prospects for future growth	33.27%
Products: Is a leader in innovation	22.21%
Leadership: Has leaders who are visible and accessible	6.76%
Leadership: Has a clear vision for its future	5.91%
Products: Makes high quality products and delivers quality services	5.80%
Leadership: Has strong and credible leaders	4.48%
Products: Makes products and delivers services that improve people's lives	2.34%
Products: Stands behind its products and services	2.34%
Workplace: Hires the best employees	2.19%
Performance: Is effectively focused on creating stakeholder value	1.57%
Performance: Tends to out-perform its competitors	1.53%
Social Responsibility: Helps improve local communities	1.27%
Performance: Consistently delivers strong bottom line results	1.23%
Social Responsibility: Acts responsibly to protect the environment	1.07%
Social Responsibility: Is committed to developing sustainable business practices	0.92%
Organization: Maintains an entrepreneurial spirit	0.74%
Workplace: Values employee safety	0.48%
Workplace: Is a good company to work for	0.45%
Social Responsibility: Supports good causes and organizations	0.23%
Organization: Invites open and frank communications	0.20%
Organization: Is responsive to the demands of its constituents	0.20%
Social Responsibility: Demonstrates honesty and integrity in its actions and communications	0.17%
Organization: Has an effective system of governance	0.14%
Leadership: Makes difficult business decisions in a timely way	0.13%

Note. Reputation attributes that were not present in any of the articles are excluded here.

The results of the collective analysis of the top five reputation attributes mentioned are similar to the individual analysis in that both analyses shared four of the five most-mentioned attributes. The differences are that the attribute “has strong and credible leaders” was ranked third in the individual analysis but sixth in the collective analysis, and the attribute “has leaders who are visible and accessible” ranked sixth in the individual analysis but third in the collective analysis.

A small nanotechnology company was coded as “shows strong prospects for future growth” when there were mentions of any future possibilities, potential, or growth for the company and its products. For example, one excerpt discussed a company having “a tremendous chance” to make a big impact in the manufacturing sector. Another company was described in one article as having products that “promise a market for many billions of dollars for established chemical firms.” Other examples include instances where a company’s technology were described as “the industry’s most promising new technology,” as “poised to greatly stimulate growth” in a particular market, and as having “potential medical applications.”

Companies were considered “a leader in innovation” when they were mentioned as “an industry leader,” a “technology leader,” or “one of the pioneers” in a particular industry. Other examples of this attribute include instances a company receiving an award or some kind of industry recognition for their innovation such as an award for having “one of the top 100 most technologically significant new products of the year.” The reputation attribute “makes high quality product and delivers quality services” was present if an article mentioned phrases such as “high performance,” “unique performance,” “high quality,” “superior properties,” and “commitment to quality.” A

company was also considered as making a “high quality product” and delivering “quality service” if its product won an award for quality and performance.

Finally, the presence of the leadership attributes “has leaders who are visible and accessible,” “has a clear vision for its future,” and “has strong and credible leaders” included various discussions of the leadership, often the CEO, of a company. For example, the attribute “has leaders who are visible and accessible” was coded if the article mentioned a company executive’s participation at a conference as a keynote speaker or panel discussant, acceptance of invitations to give a presentation at a seminar or workshop, or presence in any public or networking events. Illustrations of the attribute “has a clear vision for its future” included descriptions of “a strong growth strategy,” identification of specific target markets, and the “large visions” or “future focus” of a company. Article content coded for the attribute “has strong and credible leaders” most often consisted of descriptions of an executive’s professional background and experience, including previous positions held, academic credentials, and the number of years (often decades) involved in an industry. The mention of the number of journal articles published and the number of patents held were also examples of a company that “has strong and credible leaders.”

CHAPTER 6

RESULTS

The previous chapter provided a descriptive analysis of the data, which were collected using two methods: 1) interviews with managers at small nanotechnology firms and persons familiar with these firms, and 2) content analysis of the focal nanotechnology firms' corporate materials, as well as news articles about the firms. This chapter details answers to the five research questions proposed in chapter 4. Before proceeding to describe the results, it should be noted that although the themes are discussed in terms of either answering the identity question (RQ1a) or the reputation question (RQ1b), the themes can also be interpreted as related to both identity and reputation. Identity and reputation depend on and feed off each other and are inherently related (Bouchikhi et al., 1998). The scholarship on this issue is supported by the interviews, in which the interviewees often expressed their inability to discuss identity and reputation separately.

Although Theme #1 answers RQ1a, it can also be viewed as related to RQ1b, because for nanotechnology companies to make sure they are communicating their identity consistently, they must be able to evaluate their consistency in identity. Such companies need to be able to receive feedback on how their identities are perceived by their external stakeholders. Companies need to continuously communicate with their partners, customers, and investors to make sure there are no discrepancies. Also, employees and managers should report back to the CEO or the person in charge of external communication if they hear any discrepancies from partners, customers, and

investors, either through casual conversation or at other more formal occasions such as conferences and trade shows. Companies can only evaluate whether their reputations accurately reflect their identities if they know what their reputations are.

Similarly, it is difficult to categorize a theme as either a challenge or an opportunity for small nanotechnology firms. A theme may simultaneously be a challenge and an opportunity. Alternatively, a theme that is initially a challenge may become an opportunity for nanotechnology firms if they are able to overcome that challenge. Theme #11, “scientific and intellectual intensity of the leadership,” provides a good example of the difficulty in separating a challenge from an opportunity. Small nanotechnology companies may be able to leverage their intellectual capital, as their founders or executive officers are often highly regarded and associated with renowned academic institutions. At the same time, however, these leaders may lack the communication skills necessary to appropriately or accurately represent the identities of their companies. Although this section answers each of the research questions separately, the reader should keep in mind that the identity and reputation themes, and also the challenge and opportunity themes, are closely related.

Identity and Reputation Management

RQ1a asked how small firms create and communicate their organizational identity in an emerging field. RQ1b asked how small firms build and manage their corporate reputation in an emerging field. The thematic analyses of the interview responses showed that the answers to RQ1a and RQ1b can be described by eight different themes. They provide descriptions which, interpreted together with the quantitative results, identify specific strategies small nanotechnology firms may use to create their identity

and build their reputation. Based on the descriptions of the interview themes and the quantitative results, this first set of research questions is also answered by four objectives (consistency, shared responsibility, credibility, legitimacy) and five approaches to achieving these objectives (internal training, human capital as leverage, transparency, strategic alliance, and value creation). These objectives and approaches are linked into a theoretical model proposed in the next chapter. The present chapter focuses on summarizing the themes that help answer the first set of research question and introducing the objectives and approaches that emerge from the interview themes.

The answer to RQ1a is described by four themes: Theme #1, “know who you are and who you’re not”; Theme #3, “show where you fit in and how you bring value”; Theme #5, “make promises you can keep, set goals you can reach”; and Theme #10, “the people are the company.” These themes suggest that small nanotechnology firms can create and communicate organizational identity in four ways. First, small firms must establish an identity that can be consistently communicated both internally and externally. A company should not communicate its identity without first forming an identity that every employee within the company agrees on and understands. This important objective of achieving consistency in identity can be done by internal training. The internal training approach can include conversations or meetings within the company, having formal training sessions with employees, or distributing newsletters or documents that support the identity within the company. When a clearly defined and agreed upon identity is established within a company, the company must make this identity clear to external audiences, including the news media, customers, partners, and investors, so that they know what it is and what it is not. The identity should guide the

company in everything it does, including its communication activities and the selection of partners, investors, and customers.

Second, part of a clearly defined and agreed upon identity is addressing how nanotechnology firms and their technologies or products fit in the existing marketplace and technological landscape. According to the interviewees, one example is for small companies to decide where they fit in the supply chain. The production of a pen can serve as an illustration. A pen has several components: the ink, the writing tip, the molding, the coating of the mold, and the writing or logo. A company with a newly-discovered nanomaterial that might be used in one or more of these components needs to identify and publicize the component(s) it believes its technology can improve. Although this is a simple example of what it means for a small nanotechnology firm to identify its role in the supply chain, it illustrates that companies can play roles in almost any part of a manufacturing process. It is the responsibility of small nanotechnology firms to make decisions about the roles they want to play in the marketplace.

In addition to specifying their role(s) in the marketplace, it is necessary for small nanotechnology firms to explicate how their technologies or products can bring value to their investors, partners, and customers. Specifically, instead of discussing how their technologies are valuable, these firms should be talking about how the technologies can solve existing problems, improve existing products, or meet the needs of potential customers or partners. For example, revisiting the pen illustration above, a nanotechnology firm may have a new coating that can be spread over a pen's surface to make the color brighter for longer periods of time. Rather than explaining the different "cool" things the coating can do or how the new technology enables the coating to do

what it does, a company may be more successful if it approaches a potential partner in pen manufacturing and describes how the new coating can improve the quality of the pens.

A third way that small nanotechnology firms can make sure their identity is accurately represented is by keeping promises and reaching goals. Almost all of the interviewees cited breaking promises as one of the most important mistakes that small nanotechnology firms can make. By making unrealistic promises and setting impractical goals, firms may unintentionally identify themselves with the group of nanotechnology firms who have continuously overstated their capabilities and fallen short of their investors' and partners' expectations.

The last theme that answers the question of how small nanotechnology firms can create and communicate their organizational identity relates to leveraging people as the face(s) of their companies. Discussions in the previous chapter suggest that the identity of a small nanotechnology firm starts with its people, including its founders, executive officers, and employees. The people factor is particularly important for small companies that have yet to establish a set identity in the minds of their external audiences. If a small nanotechnology firm's identity is not yet established externally, it is likely that external audiences will view the identity of its leadership as the identity of the company.

This theme of leveraging people as the face(s) of a company also highlights a second objective for small nanotechnology companies: identity management should be regarded as a responsibility shared by the executive team as well as the employees. An approach to achieving this objective is to make sure that companies are able to use their human capital as leverage. Individuals who speak on behalf of a small nanotechnology

company need to represent their company's identity. Similarly, employees who have direct contact with their company's customers should also make sure they are constantly reinforcing their company's identity. Additionally, employees need to be able to recognize when their company's identity is being threatened or is inconsistent with the company's own understanding of that identity.

RQ1b asked how small firms build and manage their corporate reputation in an emerging field. The answer can be described by four themes: Theme #7, "transparency"; Theme # 12, "emphasis on informal, interpersonal interaction"; Theme #14, "be strategic in your communication and activities"; and Theme #16, "build partnerships based on compatibility and feasibility." The interview responses demonstrate that small firms in the nanotechnology field can build and manage their reputation by making sure they are transparent about what they do, what they can do, what they don't do, and what they cannot do. Nanotechnology is a field that is new and difficult to understand, which can often inspire fear and misunderstanding; clear communication to external audiences is essential.

Moreover, small firms involved in the nanotechnology area can build and manage their reputations by emphasizing informal and interpersonal interactions with their investors, customers, and partners. These interactions enable small nanotechnology firms to work closely with their partners and customers, thereby allowing the firms to better meet the needs of their partners and customers. Close relationships with partners and customers also mean that if small firms need to change focus, such as shifting their role in the supply chain, they can work with their partners to try to bring the partners along, rather than starting over and identifying new partners.

Finally, for small nanotechnology firms, the building and management of reputation should stay focused and remain strategic, as represented by Theme #14 and Theme #16. In particular, the firms should be selective about where they spend their energy and put their resources. The interviews showed that the ideas of staying focused and acting strategically need to be applied to every facet of a small firm, so that it can make the best use of available financial and human resources. This includes attending the appropriate conferences, partnering with the right partners, investors, and customers, and choosing the most relevant media outlets to reach target audiences.

The findings support previous reputation studies relevant to small nanotechnology firms. For example, Petkova et al. (2008) found that new firms accumulate two types of reputation: generalized reputation with large groups of distant stakeholders—those who have no direct experience with the firms – and local reputation with a small group of local stakeholders—those who have direct experience with the firms. The authors stated that generalized reputation can be accumulated via symbolic activities—such as attending tradeshow, speaking at conferences, and educating the public on a new technology—and investment in human and social capital. The authors referred to social capital as social relationships (e.g., strategic alliances, partnerships) with prominent industry players, which can help attract other stakeholders. These symbolic activities were evident in the themes that emerged from the interviews, particularly Theme #14, “be strategic in your communication and activities.” Further, investment in human and social capital was also reflected in Theme #10, “the people *are* the company.” In addition, local reputation can be accumulated through investment in product quality and close relationships with customers.

Although the interviewees in this study did not specifically address their investment in product quality, they did emphasize the importance of small firms showing how they can bring value to customers, partners, and investors. Moreover, as Petkova et al. (2008) found, the interviewees in this study highlighted close interpersonal interaction with investors, partners, and customers as an important aspect of their reputation-building activities. This dissertation, however, extends Petkova et al.'s study in three important ways. First, this study not only has identified ways small firms can build reputation, it has also pointed out challenges and opportunities small firms may face in this process. Second, it has considered organizational identity as an important component in the process of reputation-building. Finally, whereas Petkova et al.'s model described the effects of reputation-building activities on generalized and local reputations as a one-way relationship—reputation-building activities leading to reputation—the findings of the present study show that firms' reputation and reputation-building activities have a two-way relationship. While reputation-building activities can certainly influence reputations, firms' reputations can also affect their reputation-building activities. Companies can take the feedback they get about their reputations and incorporate the feedback into their reputation management solutions.

Based on the themes that emerged from the interview transcripts, small nanotechnology firms can successfully build a desirable reputation by achieving two critical objectives: gaining credibility and obtaining legitimacy. Small firms in the field of nanotechnology can gain credibility by being transparent about their strengths, weaknesses, and their progress. They can also obtain legitimacy by forming strategic alliances with larger, more established firms, and by creating value for their customers,

investors, and partners. The two objectives and approaches to achieving these objectives are introduced below in Figure 2.

Each of the eight identity and reputation themes has its associated challenges and opportunities, as described in the previous chapter and illustrated in Figure 1. The following section details the themes related to the challenges and opportunities that small firms in nanotechnology face in the process of managing their identities and reputations.

Challenges and Opportunities

RQ2a asked what challenges and opportunities small firms face in creating and communicating their organizational identity in an emerging field. This question is answered by four themes: Theme #2, “internal consistency”; Theme #4, “the changing nature of the field”; Theme #6, “to be or not to be identified with nanotechnology”; and Theme #11, “the scientific and intellectual intensity of the leadership.” Each of these themes is related to one of the four identity themes discussed in relation to RQ1a, because challenge and opportunity themes either explain a particular identity theme or can be solved by an identity theme. Theme #1 stated that a clearly defined identity can only be successfully and accurately communicated to stakeholders outside of small nanotechnology firms—partners, investors, customers—if the firms can first achieve internal consistency in how executive officers and employees understand that identity, as noted in Theme #2.

Theme #3 suggested that small companies need to show how they can fit into the technology landscape and the value they can bring to potential investors, partners, and customers, as well as to society in general (e.g., using water filtration to improve the quality of drinking water and eliminate disease caused by bacteria in water supplies).

However, the nature of nanotechnology as an emerging field can make that difficult because the field is constantly changing (Theme #4). This means that small companies often need to shift their focus to adapt to the changing environment. For example, suppose a small nanotechnology company discovers a new nanomaterial that can be incorporated into beauty products to improve skin texture. While this newly-discovered material might have attracted attention and potential partners a decade ago, the company may find that the current concerns with environmental, health, and safety issues in the field drive potential partners away from becoming involved with nano-sized materials that might be perceived by consumers as harmful to the human body. As a result, the company may have to determine some new way that its nanomaterial can bring value to and improve another product. Additionally, small managers in an emerging field should also be cognizant that they may need to adapt their identity to changes in their focus.

Interviewees discussed their decisions about whether to be identified with the term *nanotechnology* (Theme #6). Some participants struggled with the decision because the identification with nanotechnology can sometimes spur suspicions and cynicism in potential investors, partners, customers, and the general public. According to some interviewees, many small firms in nanotechnology have failed to keep the promises they made to investors or partners. Understandably, then, one of the themes that emerged from the interviews is that small nanotechnology firms must make promises they can keep and set goals they can reach (Theme #5). Another theme that answers RQ2a is Theme #11, “the scientific and intellectual intensity of the leadership.” This theme, as mentioned in the introduction to this chapter, can be an opportunity if small nanotechnology firms can leverage the intellectual identity of their leadership, but it can

also be a challenge if the firms' leaders lack the communication skills to accurately portray the desired identity.

RQ2b asked what challenges and opportunities small firms face in building and managing their corporate reputation in an emerging field. Five different themes provided insight into this research question: Theme #8, "believability and the lack of understanding"; Theme #9, "fear of new technology"; Theme #13, "close interaction with customers"; Theme #15, "lack of resources and personnel"; and Theme #17, "the proprietary nature of the field." As with the answer to RQ2a, based on the interpretation of the interview transcripts, each of the five themes can be associated with a challenge, an opportunity, or both.

Theme #8, "believability and lack of understanding," and Theme #9, "fear of new technology," are two challenges encountered by small nanotechnology firms in trying to build their reputations. These challenges may be overcome if the firms are transparent about their strengths and weaknesses and are transparent in their communication about what they do and their progress. Transparency is necessary because nanotechnology is a field that deals with complex scientific information and can be difficult to comprehend. Furthermore, people often react to nanotechnology the way they react to any new and unfamiliar technology—with fear and skepticism. By being transparent about what they do, small nanotechnology firms may allay fears about the use of nanotechnology in the production of consumer products.

Placing an emphasis on informal and interpersonal interactions with potential investors, partners, and customers (Theme #12) allows small nanotechnology firms to better cater to customer needs. While large corporations may or may not have one-on-

one interaction with customers, it is essential to the success of small firms. Close interactions, however, also mean that managers in these companies can often be “stretched too thin” in terms of their time. Therefore, Theme #13, “close interaction with customers,” presents itself as both a challenge and an opportunity for small nanotechnology firms.

Theme #15 addresses the challenge of limited financial and human resources that faces many small nanotechnology firms, highlighting the need for the firms to be strategic in their communication and activities, as the discussion of Theme #14 has already described. Finally, compatible and feasible partnerships (Theme #16) can benefit small nanotechnology firms in several ways, such as providing additional resources and channels of distribution, as well as validation and legitimacy for the firms’ technologies and products. A small firm’s ability to announce formal partnerships with larger, more established, and more well-known organizations can serve to increase credibility. The proprietary nature of the field of nanotechnology, however, often prevents small nanotechnology firms from being able to announce such partnerships. Many participants reported that they have had to sign non-disclosure agreements that limit what they can say about such partnerships. Even though this is a challenge that many of these firms encounter, it does not negate the benefits that partnership-building can bring to small nanotechnology firms.

The first two sections of this chapter have discussed the themes resulting from the interviews with managers at small nanotechnology firms and persons familiar with these firms. The themes have provided answers to the first two sets of research questions. The

next three sections turn to the results of the content analysis of corporate materials and news articles from the 23 focal firms.

Identity Expressed in Corporate Materials

RQ3 explored the identity aspects that small firms express and communicate in their corporate materials. This research question was answered by the computer-assisted content analysis of the 23 companies' websites, news releases, annual reports, and newsletters using DICTION. The findings show that small companies in the nanotechnology field highlighted the following identity-related values in their corporate materials: being helpful, ambitious, cooperative, imaginative, and recognized by other social institutions. Small nanotechnology companies are eager to express their ability to be helpful and bring value to their customers, partners, and investors, and at times, their ability to contribute to society. They appear to value their ambition but also like to be perceived as collaborative. Results showed that small nanotechnology companies strive to be successful, and frequently do so by forming partnerships with other companies and organizations. Companies also emphasized their imaginative and innovative nature, which is imperative in a high-tech and emerging field such as nanotechnology. And finally, small nanotechnology companies value various forms of recognition from society and seek to be recognized, accepted, and acknowledged. If firms are recognized, accepted, and acknowledged, they are in essence granted legitimacy and credibility. Also, by gaining various forms of recognition, firms are establishing themselves in the minds of their potential investors, partners, and customers, and providing proof that they are competent and able.

Values that the focal companies were not as concerned about were independence, politeness, self-respect, cheerfulness, and peace. These five values had the lowest mean relative percentages ($< .20\%$) of the 36 communicated values (see Table 11). The finding that the focal firms view “true friendship” as an important value may explain why independence is not considered as important as the other identity-related values. Politeness and self-respect also appear to be low on the priority list of values important to the focal companies. The value “world of peace” did not appear in any of the corporate materials.

Reputation Portrayed in the News Media

RQ4a examined the ways that small firms’ reputations are portrayed in the media. This research question was answered by the content analysis of news articles about the 23 nanotechnology companies examined.

Media prominence in this study was measured in two ways: the prominence of the focal companies within individual news articles, and the prominence of the companies in the volume of news articles. For the prominence of companies within articles, results showed that the focal companies were the dominant subject in approximately one-third of the news articles ($n = 322$; 34.5%). A company’s presence in the article was coded as “dominant” only if the company was crucial for the news article; without the focal company, the news article would not exist. The focal companies had an “average” presence in also about one-third of the news articles ($n = 272$; 29.3%), and a “minor” presence in a similar proportion of the articles ($n = 339$; 36.3%).

The prominence of the focal companies based on the volume of news articles and the within-article dominance demonstrated that some small nanotechnology companies are more prominent in the news media than others (see Table 17).

Table 17

Companies' Prominence, Most Mentioned Reputation Attribute, and Most Communicated Identity Value

Company	Article		Dominant		Average		In Passing		Most Mentioned Reputation Attribute	Most Communicated Identity Value
	%	n	%	n	%	n	%	n		
Company S	9.86	92	65%	60	21%	19	14%	13	Products-innovation	<i>Imaginative</i>
Company K	3.54	33	61%	20	18%	6	21%	7	Leadership-strong	True friendship
Company V	1.71	16	56%	9	13%	2	31%	5	Leadership-visible; Products-innovation	<i>Imaginative</i>
Company L	3.43	32	50%	16	13%	4	38%	12	Performance-prospects	True friendship
Company U	0.21	2	50%	1	0%	0	50%	1	Products-innovation; Products-quality	Social recognition
Company C	5.36	50	40%	20	32%	16	28%	14	Performance-prospects	<i>Helpful</i>
Company P	0.86	8	38%	3	25%	2	38%	3	Performance-prospects	<i>Ambitious</i>
Company T	7.29	68	37%	25	32%	22	31%	21	Performance-prospects	<i>Ambitious</i>
Company E	1.29	12	33%	4	50%	6	17%	2	Performance-prospects	<i>Broadminded; Imaginative</i>
Company J	0.64	6	33%	2	33%	2	33%	2	Performance-prospects; Products-innovation	<i>Helpful</i>
Company H	15.1	141	33%	46	24%	34	43%	61	Performance-prospects	<i>Helpful</i>
Company I	12.9	120	33%	39	45%	54	23%	27	Performance-prospects	True friendship
Company A	4.39	41	32%	13	17%	7	51%	21	Products-innovation	Social recognition
Company O	9.11	85	28%	24	35%	30	36%	31	Performance-prospects	True friendship
Company D	3.11	29	24%	7	24%	7	52%	15	Products-innovation	<i>Helpful</i>
Company N	1.5	14	21%	3	36%	5	43%	6	Performance-prospects	<i>Capable</i>
Company F	8.47	79	20%	16	22%	17	58%	46	Performance-prospects	National security
Company G	7.4	69	17%	12	41%	28	42%	29	Products-innovation	<i>Broadminded; Helpful</i>
Company W	1.61	15	13%	2	47%	7	40%	6	Leadership-visible; Products-innovation	<i>Helpful</i>
Company B	0	0	0%	0	0%	0	0%	0	-----	Sense of accomplishment
Company M	1.29	12	0%	0	33%	4	67%	8	Performance-prospects	<i>Imaginative</i>
Company Q	0.75	7	0%	0	0%	0	100%	7	Performance-prospects; Products-innovation	<i>Ambitious</i>
Company R	0.21	2	0%	0	0%	0	100%	2	Leadership-visible; Leadership-strong; Performance-prospects	<i>Imaginative</i>

Note. Percentage for the articles computed based on the total number of articles for all 23 companies. Percentage for within-article dominance computed based on the total number of article per individual company. Also, instrumental values are italicized.

Specifically, Company H was the most prominent firm in the news media examined ($n = 141$), followed by Company I ($n = 120$) and Company S ($n = 92$). The articles mentioning these three companies together accounted for more than one-third of the total number of news articles reviewed for the 23 companies. Company B was the least prominent with zero articles. Company R and Company U each had two articles. A correlation analysis was conducted to see if prominence based on the volume of news articles was related to the focal companies' age, number of employees, or the number of press releases.

Based on these results, the reputation attributes with the highest mean relative percentages were “shows strong prospects for future growth,” “is a leader in innovation,” “has strong and credible leaders,” “has clear vision for its future,” “makes high quality products and delivers quality services,” and “has leaders who are visible and accessible” (see Table 16 in chapter 5). Small firms in nanotechnology are most often portrayed in the media as having promising futures and as leaders in innovation. They are also often known by their leadership, especially when they have leaders who are visible, accessible, and have clear visions for their companies' future. In addition, they tend to be associated with high quality products and services. Results from the content analysis of news articles suggest that most of the existing reputation attributes are applicable to small nanotechnology companies.

Of the 30 reputation attributes, six were not found in the news articles about the 23 companies examined. These attributes were “adapts quickly to change,” “lives up to its promises and commitments,” “rewards its employees fairly,” “encourages employee growth and development,” “recognizes and supports employee diversity,” and

“encourages development of women and minorities.” Notice that four of the six reputation attributes that did not appear in the news articles about the nanotechnology firms fall in the “workplace” category. This does not necessarily suggest that these attributes are considered unimportant by small nanotechnology companies, though they may be considered unimportant by the media in terms of describing a firm’s reputation. The absence of the six attributes in the news articles, however, may imply that because small nanotechnology companies hire fewer employees relative to large corporations, attributes related to the workplace are not as newsworthy as the other attributes that mentioned in the news media. Notice that the two other attributes related to the workplace category—“values employee safety” and “is a good company to work for”—have low mean relative percentages ($< .50\%$). The only workplace-related attribute that has some presence is “hires the best employees” (2.19%).

The reputation dimension of public esteem was measured by the focal companies’ core media favorability—whether the attributes related to the focal companies were negative or positive in tone. Results indicated that a majority of the attributes of the focal companies were mentioned in a positive tone. In fact, only seven attributes were associated with a negative tone (see Table 13 in chapter 5). In order from highest to the lowest number of negative mentions, these attributes are as follows: “consistently delivers strong bottom line results,” “shows strong prospects for future growth,” “is effectively focused on creating stakeholder value,” “demonstrates honesty and integrity in its actions,” “has a clear vision for its future,” “has strong credible leaders,” and “values employee safety.” The first attribute has 14 negative mentions, while the latter

three attributes had one mention each. The results suggest that small nanotechnology companies generally have positive media favorability.

Results from RQ3 and RQ4a together provide a clearer picture of the reputation of the 23 nanotechnology firms. The most prominent companies had either “strong prospects for future growth” or “leaders in innovation” as their most-mentioned reputation attributes. These more prominent companies also tend to highlight their collaborative and helpful aspects of their identity. The value labeled ambitious, although ranked among the five most communicated values in the individual and collective analyses, did not appear to be the most valued identity aspect for the five most prominent companies.

The one company that had “high quality products” as its most-mentioned reputation attribute was the least prominent. That company also emphasized the identity value of “social recognition,” one of the top five communicated values. Table 17 ranks the prominence of the 23 companies based on percentages of within-article dominance and shows the most-mentioned reputation attribute and most communicated identity value for each company.

Reputation Dimensions of Small Firms

RQ4b asked how existing reputation dimensions—prominence, esteem, and attributes— apply to small firms. Results from the qualitative interviews provide some insights into this question. The dimensions of prominence, esteem, and attributes were evident in the themes that emerged from the interview transcripts.

First, the reputation dimension of prominence—the collective recognition about an organization in its field—was depicted in Theme #10, “the people are the company,”

and Theme # 16, “build partnerships based on compatibility and feasibility.” Theme #10 described the need of small firms to leverage the identity and reputation of their founders and chief executive officers. Small firms may not have prominence in their field, but their leadership may be comprised of individuals who are well known and recognized in their scientific fields. Small nanotechnology firms’ prominence, then, can be achieved by leveraging the prominence and prestige of the leadership in the firms.

Small nanotechnology firms can also achieve prominence by leveraging the legitimate and credible status of their partnerships, as illustrated by Theme #16, “build partnerships based on compatibility and feasibility.” As mentioned in the previous paragraph, small firms may not be prominent in the field of nanotechnology. By partnering with larger, more established organizations who are prominent in the field of nanotechnology as well as in whatever other field they operate, and whose names are recognized by the general public, small firms may be able to achieve prominence for themselves by piggy-backing on the prominence of their large partner.

Second, the reputation dimension of esteem—the public’s trust, admiration, and respect for an organization—was revealed by the themes related to the integrity of the small nanotechnology firms. Specifically, small firms can earn trust, admiration, and respect by communicating clearly, honestly, and consistently (Theme #5 and Theme #7). Interviewees observed that many small nanotechnology firms failed to keep their promises and failed to meet the expectations of partners, customers, and investors. As a result, some of these firms face skepticism from some external stakeholders. Consequently, an important step to gaining public esteem for small nanotechnology firms is to consistently keep the promises they make to partners, customers, and investors.

Another way small nanotechnology firms can gain trust, admiration, and respect from their relevant publics is to focus on transparency (Theme #7). Such firms should be transparent about their strengths and weaknesses as well as in their communication with partners, customers, and investors. The issue of transparency is especially important in nanotechnology because the field involves complex scientific information and therefore can be difficult for people to understand. A lack of familiarity can often breed fear and skepticism among potential investors, partners, customers, and the general public. Small nanotechnology firms, by being transparent in their actions and communication, can help external audiences gain a better understanding about the firms and their technology.

The third dimension of reputation, substantive attributes, was addressed by several themes. One attribute highlighted in the interviews was the value small nanotechnology firms can bring to their partners, customers, and investors and the contribution the firms can make to the marketplace (Theme #3). Some interviewees expressed that small firms need to publicize how they solve existing problems or improve existing technologies if they want to be recognized in the field and distinguish themselves from other small nanotechnology firms.

Another substantive attribute relates to Theme #12, “emphasis on informal, interpersonal interaction” and Theme #13, “close interactions with customers.” These two themes highlight a small nanotechnology firm’s ability to respond quickly to customer demands. Furthermore, close and interpersonal interaction with customers can allow small firms to tailor their products and services to customers’ specific needs. As one interviewee noted, this is often an attribute that is highly valued and appreciated by

customers. Interviewees believed this is one advantage smaller firms can have over their larger counterparts.

A qualitative comparison between the reputation attributes that emerged from the interviews transcripts and the 30 attributes used to measure the reputations of large firms showed that several themes reflected existing attributes. For example, the attribute related to firms having strong and credible leaders was addressed by Theme #10, “the people are the company.” The attribute concerning open and frank communications came across in Theme #7, “transparency.” The attribute concerning the creation of stakeholder value was addressed by Theme # 3, “show where you fit in and how you bring value.” Finally, attributes concerning firms’ living up to their promises and commitments and demonstrating honesty and integrity in their actions and communications are reflected in Theme #5, “make promises you can keep, set goals you can reach,” as well as Theme #7, “transparency.” As demonstrated above, however, not all existing reputation attributes emerged as important themes in the participant interviews, although 24 out of the 30 attributes did appear somewhere in more than one news article about the firms. No additional reputation attributes emerged from the interview transcripts that were not covered by the existing 30 reputation attributes.

The Relationship Between Identity and Reputation

RQ5 explored the relationship between aspects of small firms’ identity emphasized in their corporate content and their reputation as portrayed in the media. A comparative analysis of the firms’ identity and their reputation suggests a qualitative relationship existed between the two for the attribute of innovation. For example, a qualitative relationship existed between the identity value, “imagination,” and the

reputation attribute, “a leader in innovation.” The attribute of being leaders in innovation ranked among the top five most-mentioned reputation attributes in the news articles, and the value of imagination, or innovation, also ranked among the top five most communicated identity values. These two findings together suggest that the value of innovation deemed important by the focal firms is also a value that is associated with the firms in the news media.

Additionally, “ambitious”—the second most frequently occurring identity value—can be interpreted with “shows strong prospect for future growth”—the most-mentioned reputation attribute. Small nanotechnology firms often expressed their ambition through the use of words such as “drive,” “competitive,” “expansion,” “progress,” and “growth.” The value of ambition seems to translate into the focal firms’ reputation in the media. The news media’s portrayal of the focal firms represents the firms as showing prospects for growth by covering stories about their market expansion, sales growth, and commercial progress. The reputation attribute “consistently outperforms its competitors”—a reputation attribute portrayed in the media, although not among the five most-mentioned attributes—also supports the value of ambition emphasized by the focal firms.

The most frequently occurring value, “helpful,” also translated into the media portrayal of the firms through three reputation attributes: “makes high quality products and delivers quality services,” “is effectively focused on creating stakeholder value,” and “makes products and delivers services that improve people’s lives.” Small nanotechnology firms’ focus on being helpful and providing value to their customers, investors, partners, and the general public were often expressed by words such as

“customize,” “improve,” “enhance,” “enable,” and “benefit.” The media’s portrayal of the focal firms as producing high quality products, creating stakeholder values, and making products that improves lives suggests that the value “helpful” emphasized by the firms is a value oft-associated with the firms in the media.

In sum, a qualitative relationship exists between the identity values emphasized in the focal firms’ corporate materials and their reputation portrayed in the news media. The identity values and the reputation attributes can be interpreted in conjunction with one another to enable a better understanding of the firms’ identity and reputation. Further, the combined consideration of the identity values and the reputation attributes allows for the exploration of whether the values esteemed by the focal firms translate over to the reputation of the firms presented in the media.

The next chapter concludes this dissertation by providing a roadmap for the public relations practices of small companies operating in nanotechnology, and by extension, in other emerging fields. The chapter also discusses the theoretical and practical implications of the findings. It concludes with suggestions for future research as well as a summary of this dissertation.

CHAPTER 7

SUMMARY AND CONCLUSIONS

This study is based on theoretical and conceptual frameworks adapted from the disciplines of public relations, organizational communication, and management science. Using the theoretical and conceptual frameworks of organizational identity, corporate reputation, and institutional theory, this dissertation examined the public relations practices of small businesses in an emerging field, with a particular emphasis on identity and reputation management. Although scholars have emphasized that public relations activities are equally relevant and crucial for small businesses (e.g., Cole 1989; Evatt et al., 2005; Gray et al., 2004), this area of research has been neglected in the public relations literature.

The study of the public relations practices of small business in emerging fields is important for two main reasons. First, small firms tend to have an entrepreneurial orientation (e.g., Baker & Sinkula, 2009; Fulford & Rizzo, 2009), and therefore are likely to operate in emerging fields. An examination of small firms in an emerging field, then, provides a more comprehensive understanding of the public relations practices of small firms. Second, small firms operating in an emerging field face challenges both at the organizational level and at the field level (Aldrich & Fiol, 1994; Clegg et al., 2007; Rindova et al., 2007). They must legitimize their own identity and reputation as well as legitimizing the identity and reputation of the field in which they operate. Consequently,

small firms often encounter difficulties in establishing an identity and building a reputation when a field is still ambiguous and unclear (e.g., Clegg et al., 2007). The present study has identified ways in which small firms can overcome these challenges in the context of nanotechnology as an emerging field.

The conceptualization of organizations as corporate or social actors (Cheney, 1992; Whetten & Mackey, 2002) allowed me to study identity and reputation simultaneously. Bouchikhi et al. (1998) clearly addressed the interconnectedness between identity and reputation, and other studies have also implied that the two are closely intertwined (e.g., Corley & Gioia, 2004; Dutton & Dukerich, 1991; Elsbach & Kramer, 1996). Prior to the present study, however, no research had explicitly examined identity and reputation simultaneously.

This dissertation examined the public relations activities of small businesses in an emerging field and explored the relationship between identity and reputation by investigating the following:

1. The study explored how small firms in an emerging field create identity and build reputation. This was done by conducting interviews with managers in small nanotechnology firms and with others who are familiar with small nanotechnology firms.
2. This study identified challenges and opportunities that small firms in an emerging field face in the process of creating their identity and building their reputation. The challenges and opportunities were identified via the interviews mentioned in the first point.

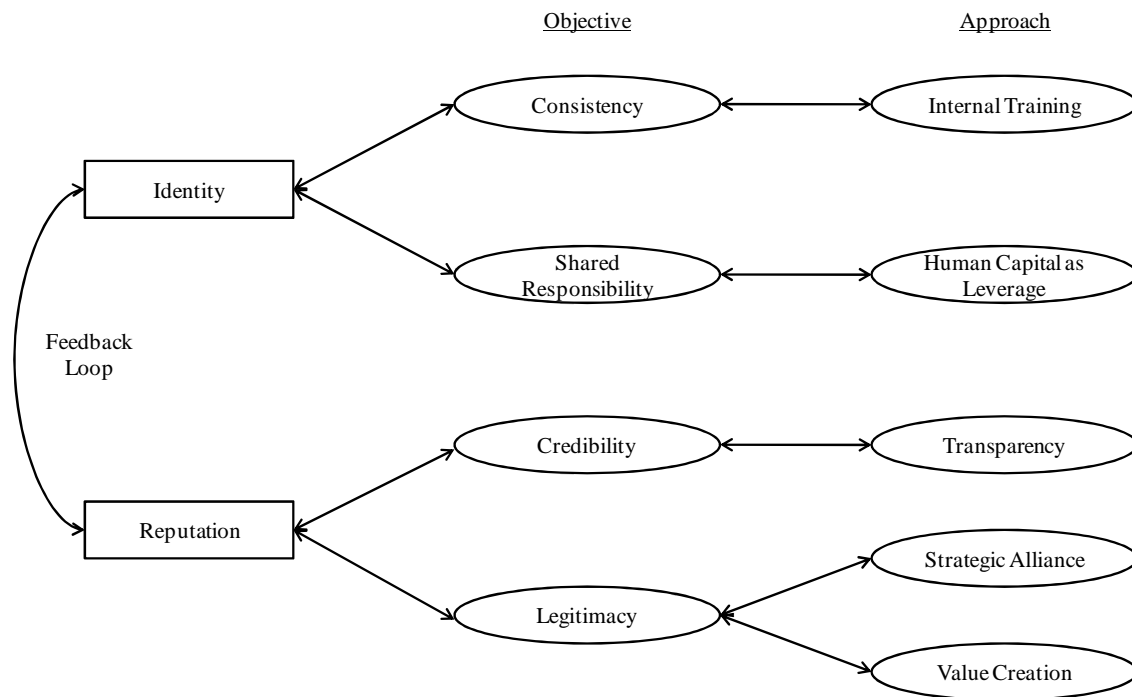
3. This study examined the identity-related values that small nanotechnology firms express in their corporate content. This was done using a customized value instrument based on Rokeach's (1986) value survey.
4. This study investigated the reputation of small nanotechnology firms portrayed in the news articles about the firms. It also explored how the three dimensions of reputation —prominence, esteem, and attributes—apply to small nanotechnology firms.
5. Finally, this study examined the qualitative relationship between the identity and the reputation of small nanotechnology firms. The identity-related values expressed by small nanotechnology firms were compared with the reputation attributes mentioned in news articles about the firms.

Based on the study findings, this dissertation proposes a theoretical model for identity and reputation management in a small business environment. The study results suggest that there are certain objectives that small businesses in the emerging field of nanotechnology should strive to achieve when trying to manage their identity and reputation. Small nanotechnology firms should achieve two identity objectives—consistency in identity (Theme #1 and Theme #2), and identity management as a shared responsibility (Theme #10)—and two reputation objectives—obtaining credibility and gaining legitimacy (Theme #8 and Theme #9). The results also highlighted approaches that can be taken to achieve these objectives. Consistency in identity can be achieved by having internal training to make sure that the established identity is clearly understood and valued by the executive team and the employees. Small nanotechnology firms can practice identity management as a shared responsibility by making sure they use their

human capital as leverage. Finally, firms can gain credibility by being transparent about their strengths, weaknesses, and progress (Theme #7), and obtain legitimacy by forming strategic alliances (Theme #3) and creating value for their investors, customers, and partners (Theme #16). The theoretical model, presented in Figure 2, illustrates the objectives and approaches that emerged from the results of this study.

Figure 2

An Identity and Reputation Management Model for Small Firms



The figure illustrates that the identity and reputation of small firms are closely intertwined. Identity informs reputation, and reputation provides feedback to identity. Note the all the arrows in the figure point both ways; this is true not only for identity and reputation, but for each of the objectives and approaches as well. The two-way arrows indicate reciprocal relationships between objectives and approaches. Additionally,

objectives and approaches related to identity may also influence objectives and approaches related to reputation, and vice versa.

The figure can be interpreted in the following way. Small firms in an emerging field must create a clear, consistent identity, which can be achieved by the formal or informal training of executives and employees to make sure that the identity is understood and agreed upon by everyone within the firm. A consistent internal identity is important, because for small businesses in an emerging field, public relations is often a shared responsibility, rather than the responsibility of a designated individual or department. Small firms in an emerging field, therefore, must make sure that individuals who speak on behalf of the firm are representing a consistent identity to external audiences. An inconsistent identity may lead to a loss of credibility if external audiences are confused about what the firm is and what it does.

The figure can also be interpreted in reverse order. Value creation is one way that small firms can obtain legitimacy. By showing how they can create value for their customers and partners, small firms are able to identify their place in, and to prove their worth to, existing institutions. Value creation, however, must be part of the identity that is recognized internally within small firms for it to be communicated consistently to external audiences.

Summary of the Findings

The model proposed above is based on the findings of the present study. First, public relations responsibilities are often shared among various people within small firms rather than resting on the shoulders of a designated individual. Second, small firms need to focus on creating an identity before they can attempt to build a positive reputation.

Third, for small firms, a positive reputation is built upon credibility and legitimacy. Fourth, the news media appear to have a high regard for small firms, as suggested by their positive evaluation of the firms' reputation attributes. And finally, identity and reputation are inseparable from one another; researchers cannot examine one without examining the other. Each of these five major findings is detailed below.

Public Relations as a Shared Responsibility

Conversations with the managers of small nanotechnology companies demonstrated that the responsibility of identity and reputation management is often shared by the chief executive officers, the founders, and/or executives in marketing, communication, or sales. Although most of these companies did not designate a single position as devoted to public relations functions, there is often a person appointed to oversee these functions. That is, while the responsibility of *overseeing* public relations activities may rest on one person, there is not one person who is *designated* exclusively to handle public relations responsibilities. This is different from larger companies, which often have a public relations department, team, or representative. For example, although one interview participant's title was "Vice President of Marketing and Sales," he managed most of his company's external communication, including its public relations activities. In another example, the founder and president of a company stated that he works with his marketing manager in monitoring the consistency of how their stakeholders view their company.

For small businesses in an emerging field, then, public relations, rather than being practiced as a separate set of functions, is more often integrated into everyday management activities. Consequently, for small businesses in an emerging field, public

relations needs to be a shared responsibility among executive staff, and even among the employees. Employees, when familiar with the firm's identity, can be valuable assets in helping to reinforce that identity in their interactions with external audiences.

The shared responsibility for public relations in small firms suggests that such firms need to leverage their human capital and make sure their executives and employees are able to represent the firm's identity. This is supported by the finding which showed that the identity and reputation of small firms are often viewed as the identity and reputation of the firms' leaders. Specifically, three of the most-mentioned reputation attributes were related to the leadership of the focal companies. This is not surprising, as scholars have pointed out that individuals such as the CEO can often become the embodiment of an organization (e.g., Cheney, 1992; see also Miller & Toulouse, 1986; Simsek et al., 2010). Moreover, as evidence from the interviews shows, in small firms, the people *are* the company.

Identity Before Reputation

Small firms should focus on establishing an identity first before attempting build a reputation. A few interviewees from nanotechnology firms mentioned that they do not specifically engage in reputation-building activities but rather let reputation build itself. In their view, if a small firm has a clearly defined identity and can accurately and consistently communicate that identity in its corporate materials and through its actions, the desired reputation should follow.

This does not imply that reputation is not important for small nanotechnology businesses. As this dissertation has emphasized, identity and reputation are as relevant and crucial for the success of small businesses as they are for large ones. A small firm

cannot build a favorable reputation unless it has a clearly defined identity that is consistently understood within the firm, as well as consistently communicated to important external audiences.

Focus on Credibility and Legitimacy

Small firms in the nanotechnology field face the challenge of establishing their legitimacy and convincing external audiences of their credibility. Such firms encountered credibility issues specifically related to fear and skepticism about nanotechnology among potential investors, partners, customers, and the general public, and therefore, about the firms' technologies and activities. This was demonstrated by several of the themes emerging from the interviews that cautioned small nanotechnology firms to keep their promises and be transparent in their communication and actions, but not about their proprietary information.

Scholars have previously pointed out that small firms are at a disadvantage when it comes to the issue of legitimacy because they are often unable to provide evidence of their reliability, trustworthiness, and competitiveness (Chen & Hambrick, 1995; Weigelt & Camerer, 1988). This may explain why these companies tend to highlight the "social recognition" and "helpful" aspects of their identity. In the reputation attributes emphasized in their corporate materials, small nanotechnology companies showed their eagerness to be considered part of existing institutions and be accepted into the "cultural crowd." By emphasizing that they are recognized by existing institutions and that they can provide value to society, these companies are in essence providing evidence that they are capable, reliable, and trustworthy. This finding supports the previous literature on institutional theory, which describes organizations as being formed from existing social

institutions (Aldrich, 1999; Meyer & Rowan, 1977) and the literature on identity theory (Dobbin, 2006; Whetten & Mackey, 2002), which highlights the need for organizations to be distinct yet recognized as part of the cultural crowd.

Small firms in the field of nanotechnology can improve credibility and gain legitimacy by building partnerships and maintaining close relationships with larger organizations that have already established credibility and legitimacy. Not only did the interviewees note the importance of partnerships and relationships with their customers, partners, and investors, the emphasis on collaboration was also evident in their corporate material and in news articles about the companies. In their corporate material, the focal companies emphasized the “true friendship” and “helpful” aspects of their identities. In the news articles, the focal firms were frequently mentioned in association with larger and more established organizations. The results of the comparative analysis between identity values and reputation attributes suggest that companies that value ambition are more likely to be responsive to and focused on their stakeholders. Previous studies have found that small organizations tend to emphasize relationship-building and collaboration (e.g., Evatt et al., 2005; Shan, 1990), which provides supporting evidence for the present findings.

Positive Media Favorability in the News

One finding of this study was that the news media had a high regard for the small nanotechnology firms studied. The news media most often portrayed the focal firms as firms that showed strong prospects for future growth and as leaders in innovation. Moreover, the media respected the leadership of the small nanotechnology companies, as evidenced by the positive tone used to describe company leaders as strong, credible,

visionary, accessible, and worthy of trust, admiration, and respect. The examination of the tone of the reputation attributes showed that only seven of the 24 attributes mentioned in the news media were negative. Additionally, the proportion of negative attributes to the total number of attributes mentioned was low, with 1.5% being the highest percentage.

Positive media coverage may impede future development of firms' identity as well as facilitating their identity construction (Kjærgaard et al., 2011). As previously mentioned, Kjærgaard et al. found that persistent organizational celebrity—defined as “a high level of public attention” and “positive emotional responses from stakeholder audiences” (p. 516)—resulting from intense and positive media coverage can hinder the future development of a firm if its celebrity status in the media no longer corresponds with its contemporary identity. This, in turn, may lead to identity discrepancy and ambiguity, and employees and stakeholders may become confused as to what the identity of the firm is. Identity discrepancy and ambiguity can also hurt internal identity work to realign claims, visions, and reality.

Although Kjærgaard et al.'s (2011) study focused on a celebrity firm, the authors noted that the findings are equally relevant for firms subjected to positive media coverage. Consequently, although small nanotechnology firms have positive media coverage, they should be mindful of the issues associated with exposure to such media coverage. These issues may include an identity discrepancy between what is represented in the news media and the identity as experienced by firms' employees, as pointed out by Kjærgaard et al., as well as potential partners' unrealistic expectations of firms formed based on the media's portrayal of them.

Another implication of this finding is that industry concerns about small nanotechnology firms that overpromise and under-deliver are not translated into the news media. The negative perception of some small nanotechnology firms expressed repeatedly by the interviewees does not seem to correspond to the media coverage of the focal firms examined in this study. Future research may need to identify why this discrepancy exists between industry perspective and media portrayals of small nanotechnology firms.

Identity Inseparable From Reputation

As mentioned at the beginning of this dissertation, because identity and reputation are closely intertwined (Bouchikhi et al., 1998; Whetten & Mackey, 2002), studies that focus exclusively on either identity or reputation may not provide a clear and comprehensive picture of an organization and its identity and reputation building practices. This dissertation makes a contribution by showing how identity and reputation may be empirically examined together.

The qualitative findings indicate that it is difficult to separate identity and reputation, as the two are closely related in practice. While the interviewees valued both identity and reputation, many of them had trouble distinguishing identity from reputation or could not separate their identity-creation activities from reputation-building activities. Further, the qualitative comparison of the identity values and reputation attributes revealed relationships that can provide a fuller picture of small companies. For example, the finding of an emphasis on the “social recognition” aspect of identity may be important by itself, but it does not explain *how* the firms are recognized by society. Similarly, the finding that small firms have the media reputation of being leaders in

innovation and producers of high quality products does not show whether that is how small firms wish to be portrayed. Taken together, however, the findings suggest that firms' reputation as leaders in innovation and producers of high quality products assist them in achieving the social recognition they value.

Identity values can only show what the companies want others to perceive their identities, and reputation attributes can only show how others outside of the companies evaluate the identities of the companies. The combined consideration of identity values and reputation attributes allows for a better understanding of both the identity and the reputation of an organization. Specifically, the examination of both identity and reputation together allows for the assessment of 1) whether certain identity values emphasized in corporate materials translate to certain reputation attributes portrayed in the media, 2) whether small firms in an emerging field are able to align their identity with their reputation, and 3), which identity values attract more media attention. Small firms in an emerging field may use the feedback obtained from discerning which identity values attract more media attention and incorporate that feedback into their reputation-building activities.

Limitations

The present study has several limitations. The most important limitation relates to the generalizability of the current study. This study examined nanotechnology as the context of an emerging field. Nanotechnology as a term and as a field is difficult to define and understand, according to the interviewees. As a scientific field and as an enabling technology, rather than a technology in and of itself, it crosses many industries (e.g., solar, batteries, electronics, and medicine) and academic disciplines (e.g.,

chemistry, physics, and biology). It is possible, therefore, that the results of the study are unique to nanotechnology and may not be generalizable to other emerging fields. In addition, there is no industry code for nanotechnology, which means that the government does not provide a list of how many companies are operating in the field of nanotechnology. It is difficult, therefore, if not impossible, to determine the universe of small nanotechnology firms in the United States. Consequently, the results may be applicable only to the small nanotechnology firms examined in this study.

On a similar note, this study selected the 23 focal firms based on the dependent variable of survival, which may explain the overwhelmingly positive media coverage of these firms. In addition, the selection of focal firms based on survival may have influenced the interpretation of the study results. It is possible that the applicability of reputation attributes is relevant only to surviving small nanotechnology firms. In other words, it may be that the reputation attributes identified in the news articles about the 23 focal firms are relevant to surviving small nanotechnology firms but not to small nanotechnology firms in general, particularly those that fail.

Next, the examination of small firms' reputations in the news media may not provide a full picture of these firms' reputations. Taking into consideration the finding that small firms tend to focus on interpersonal relationships, the reputation of small nanotechnology firms may be better represented by other types of content. These other types of content may include press releases sent by small nanotechnology firms' or their partners, e-mails and other communication exchanges between the partners and the firms, and descriptions partners have on their websites about the smaller firms.

Another limitation is that interviewing is “inextricably and unavoidably historically, politically, and contextually bound” (Fontana & Frey, 2004, p. 695). Thus, a wide-range of factors may influence the interviewing data, including my background and the interviewees’ previous experience with academic researchers, as well as their affiliation with the researcher’s university, and status in nanotechnology, among others. These are factors that could not be controlled for in the study but need to be acknowledged. Researcher reflexivity, therefore, was necessary (this is discussed in more detail in chapter 5).

The purposive and snowball sampling strategies used in selecting interviewees also have limitations. As Singleton and Straits (2005) noted, the quality of the sample obtained using snowball sampling depends on the “the researcher’s ability to develop initial contacts and referral chains that represent a range of characteristics in the target population” (p. 138). While I had the ability to make initial contacts because of previous research involvement in the field of nanotechnology, the ability to obtain referral chains appropriate for this dissertation depended greatly on those initial contacts. Moreover, while purposive sampling may allow for strong inferences, it requires a researcher to have considerable knowledge of the population to be sampled before drawing the sample (Singleton & Straits, 2005).

As with the interviewing method, the content analysis method also has its limitations. The first limitation relates to requesting corporate documents from participants. Bias may have been introduced into the data in terms of what documents were supplied. It is possible that participants failed to provide all relevant identity-related documents due to reasons such as lack of motivation, difficulty with compiling

documents, issues with mailing or e-mailing documents for firms at distant geographic locations, or concerns for the confidentiality of internal documents. Additionally, the focal firms' websites may not have provided all documents relevant to the firms' identities.

Other limitations stem from the use of computer coding. Although computer content analysis can be more reliable than human coding (Shapiro, 1997) and more efficient (Nacos et al., 1991), computer coding also has several limitations. First, high reliability does not necessarily guarantee validity (Riffe et al., 2005; Shapiro, 1997). Second, computers cannot recognize ambiguities and problems in the content, such as words that have multiple meanings (Conway, 2006). This means that computer coding may not have captured the unique or specific identity claims of each individual company. Third, the issue of reliability may still be a concern with computer coding because it involves subjective, arbitrary steps by humans (e.g., categorizing words, choosing certain words over others) when adapting the content to the computer program (Conway, 2006).

The use of online databases such as LexisNexis to search for content relevant to the identified companies also introduces limitations. When using an online database, one cannot determine the universe being sampled (Riffe et al., 2005). For example, the content searched using a string on one day can change the next day using the same search string because of unannounced changes in database contracts. Further, the original news content can differ from the content in a database because certain information such as photographs and quotes may be excluded in the database content (Riffe et al., 2005; Weaver & Bimber, 2008). Consequently, the news articles collected using LexisNexis may not be representative of news media coverage of the focal nanotechnology firms.

Many of the limitations listed in this section are conditions that I could not control, and other limitations are the results of resource and time constrictions that researchers frequently encounter. Despite these limitations, however, the current study makes important contributions to public relations practice and theory.

Implications

For Public Relations Scholars and Educators

This study has important implications for public relations scholars and educators. The results give evidence of public relations as a management function and as a strong leadership component of a small firm in an emerging field. Managers of small businesses in an emerging field need to be well-versed in everyday management activities as well as in public relations functions. In other words, small firms may have better public relations managers because they need to be knowledgeable in both the management and communication facets of a business.

The findings also suggest the need for public relations educators to prepare college students graduating from public relations programs to address the specific needs of small companies. Some of these specific needs include the ability to integrate public relations activities with everyday management activities, to work with limited resources and get the “biggest bang for the buck,” as one participant put it, and to overcome the challenges and take advantage of the opportunities that present themselves for small businesses in an emerging field.

According to statistics provided by the U.S. Small Business Administration (2009), small firms represent 99.7% of all employer firms in the United States. Although the SBA defines “small” using a 500-person cap, statistics from the U.S. Census Bureau

show that the average employer size is 23. It is reasonable to assume, therefore, that graduating college students are more likely to find their first jobs in small companies rather than in large corporations. If public relations students are not trained to practice public relations in the small business environment as well as in large corporations, they may be limited to public relations jobs focusing on mere technical functions. Seeking to educate students about how public relations should be practiced in the small business environment may bring us a step closer to positioning public relations as a strategic function, a research tradition that has been continuously explored by public relations scholars (e.g., Gower, 2006; Grunig, 2006; Ledingham & Bruning, 2000).

For Small Firms in an Emerging Field

This dissertation suggests some ways in which small companies in an emerging field can create identity and build reputation. Figure 2 presented in this chapter provides a preliminary roadmap for how small companies in the emerging field of nanotechnology can create identity and build reputation. Specifically, small firms in an emerging field need to create clearly defined identities that are understood and agreed upon by executive officers as well as by employees. Firms can do this by having training sessions, formal meetings with employees, and circulating materials internally that are relevant to their identities. Small nanotechnology firms may wish to strive for an identity that highlights their willingness to be contributing members of society and collaborative partners, as well as their continuous efforts to lead in innovation, meet aggressive goals, and trump their competition. In addition, when it comes to building a reputation, small firms should focus on improving credibility and gaining legitimacy. As demonstrated in Figure 2,

firms may do this by being transparent, forming strategic alliances, and showing how they can create value for their investors, partners, and customers.

Further, the interviewees pointed out several mistakes that small companies in the nanotechnology field have made. First, small companies should not jump on the nanotechnology bandwagon without careful consideration, given the hype and skepticism surrounding the field. This is not to say that companies should avoid identifying themselves as nanotechnology-related at all costs. It merely means that they should not do so lightly or for the purpose of riding a wave in an attempt to obtain investment and funding. On a related note, small nanotechnology companies need to keep every promise and meet every expectation. Although this seems to be a simple rule, interviewees' references to it suggest that many companies in the field have violated this rule, whether intentionally or unintentionally.

Next, small companies need to clearly identify what it is they bring to the table, and convince potential clients and partners with actual data rather than with speculation or prediction. Nanotechnology is an emerging scientific field which is difficult for some to understand, and which can therefore incite fear and misunderstanding. To address such fear and skepticism, and to avoid misunderstanding, it is necessary for companies to speak clearly and honestly in their personal interactions as well as in their communication materials.

Another lesson learned is that small companies in the nanotechnology field need to carefully consider what they want their identity and reputation to be before they start communicating externally. In the words of one interview participant, companies should not "talk too much too fast." Communicating externally without a clearly established and

agreed upon identity internally can damage a company's identity and reputation in the long run.

Finally, despite their limited resources and personnel, it seems that small nanotechnology firms are able to build positive media reputations. Although firms shared strategies they used to build reputation, they did not specifically address the ways in which they attempted to influence how they were portrayed in the news media. In fact, the interviews showed that many of the focal firms' media strategies were limited to sending press releases to news wires or trade publications. Therefore, it is unclear what media strategies the firms followed other than sending out press releases. This is an important area that future research should explore.

Future Research

Moving forward, future research might take several directions. First, this study explored its research questions in the context of the emerging field of nanotechnology; to investigate such questions further, researchers may want to examine firms in other emerging fields, such as green technology or solar energy. Researchers may be able to formulate hypotheses to be tested using this dissertation as a starting point.

Second, research on the practice of public relations in the small business environment should be continued with the aim of formalizing a public relations model appropriate for small firms. For example, in-depth interviews or ethnographic approaches could be used to investigate more carefully how the responsibilities of public relations are shared among various individuals in small firms. If researchers take a quantitative approach, surveys with a predetermined list of public relations activities

could be distributed to individuals with different positions within small firms to help answer the same question.

Third, the findings of the present study show that although most of the existing reputation measures can be applied to small nanotechnology companies, some minor adjustments may need to be made, considering that six of the 30 reputation attributes tested did not apply to the firms examined in this study. Future research might attempt to measure the reputation of small businesses among their external stakeholders. The reputation attributes might be used to devise a survey to be distributed to the customers, partners, and investors of select small firms. Along the same line, future research should explore whether small firms and larger firms rank the 30 attributes differently in terms of the importance of the attributes for their reputation.

Another possible research direction is to trace the process of how specific identity values relate to reputation attributes by taking company age into consideration. It may be that identity values and reputation attributes follow a specific pattern depending on the age of the small company. It may also show a small company's changing public relations strategies as the company develops over time. This may help researchers better understand how small companies decide to identify themselves at the beginning of their lifecycles and whether companies that emphasize certain identity aspects have better reputations than companies that emphasize other aspects. On a similar note, future research could also conduct a quantitative comparison between the identity values as expressed in firms' corporate materials and the identity values of the firms expressed in the news media. Alternatively, future studies can also examine the reputation attributes

that firms wish to convey and the reputation attributes of the firms that are portrayed in the news media.

Finally, this dissertation examined nanotechnology firms with fewer than 100 employees, but did not take other contingency factors into consideration. Future research examining public relations, identity, and reputation management in small firms should take into consideration factors such as ownership (private or public) and annual revenues of the sample firms. These contingencies may or may not play a role in determining how small firms practice public relations, but they certainly should be investigated.

Summary

The main goal of this dissertation was to explore the identity and reputation building practices of small businesses in an emerging field. The interpretive analysis of interviews with participants representing the 23 focal companies identified ways that small companies in an emerging field may create their identity and build their reputation. It also presented several challenges and opportunities that small companies may face, some of which are specific to companies operating in a new, emerging field.

Results from the quantitative analysis of the companies' corporate materials and of news articles about the companies showed that the companies value the identity aspects that highlight their innovativeness, ambition, cooperativeness, and value to society. Results also demonstrated that these small companies have a mostly positive reputation in the media and are known mainly for their innovation, leadership, and potential growth. Considering the results of the analyses, it is clear that identity and reputation cannot be separated in practice. This has implications for identity and

reputation theories, as it points to the need for identity and reputation scholars to converge the two traditions into a single, more comprehensive line of scholarship.

Based on the study findings, an identity and reputation management model for small businesses has been proposed. The model, however, is formulated in the context of nanotechnology as an emerging field. Future research should turn its attention to examining the role of public relations in small businesses in various contexts. An eventual theoretical model for the public relations practices of small businesses that has been refined and empirically tested will improve public relations theory and practice.

APPENDICES

Appendix A: Recruitment E-mail

Subject: Referral by _____ for research study on small nanotechnology firms

Dear _____,

My name is Nell Huang and I am a doctoral student from the University of North Carolina at Chapel Hill's School of Journalism and Mass Communication. I'm writing to invite you to participate in a telephone interview to understand how small firms in nanotechnology can build identity and reputation. You were referred to me by _____. Your participation will help researchers and organizations understand how small companies can build identity reputation in an emerging field.

The interview will take approximately (one to two hours / 45 minutes to an hour). I will be asking you questions regarding your experience and opinion on how a small nanotechnology firm can build identity and reputation. If you think another person at your (company / office / organization) would be a better fit for the purpose of my study, I would appreciate it if you could refer me to that individual.

If you would like to participate in this study, please let me know what date and time work best for you. Before we begin the interview, I will provide more information about the study, and ask for your consent to participate.

If you have any questions or would like to find out more about my study, please feel free to contact me. Thank you in advance for considering participation in this study.

Sincerely,

Nell Huang, ABD
Doctoral Candidate
School of Journalism and Mass Communication
UNC Chapel Hill

Appendix B. Interviewing Guide for Managers Holding the Highest Communication Position at Small Nanotechnology Firms

(Continued from telephone consent script)

1. Can you give me an overview of your company?
 - a. Probe: When was the company founded?
 - b. Probe: Approximately how many employees does your company have? (If company employs more than 150 individuals, skip to Q15).
 - c. Probe: Why was the company first established?
 - d. Probe: What kind of business does your company do?
 - e. Probe: Who do you do business with?
2. Please describe to me your role in your company.
 - a. Probe: What are your job responsibilities?
 - b. Probe: Who do you work with daily?
(NOTE: Determine if the interviewee hold the highest communication position within the company. If not, proceed to ask probes c and d. Then proceed to Q15).
 - c. Probe: Can you tell me who is responsible for the communication function (e.g., marketing, public relations, advertising, investor relations) at your company?
 - d. Probe: May I contact this person for an interview?
3. In your own words, please describe to me the purpose of your company.
 - a. Probe: What is the mission and goal of your company?
 - b. Probe: Where do you envision the company to be or what will it achieve in ten years?
4. When you think about identity of organizations, what do you think of?
 - a. Probe: How would you define identity? What does the term mean to you?
5. What about reputation? When you think about reputation, what do you think of?
 - a. Probe: How would you define reputation? What does the term mean to you?
6. When you think of the identity of your company, what does this mean to you?
 - a. Probe: What do you think your company stands for?
 - b. Probe: How, if at all, is your company distinct from other companies in the field?
 - c. Probe: How, if at all, have you struggled with thinking about your company's identity?
 - d. Probe: How, if at all, has the identity of your company changed over time?
 - e. Probe: Do you think your view of your company's identity is consistent with others' views within the company?
 - f. Probe. How relevant are your identity and reputation for making connections with the government and journalists?

7. What are the different ways you express your company's identity?
 - a. Probe: What type of activities do you do to try to promote your company's identity?
 - b. Probe: What materials do you use to communicate about your company?
8. When you think of the reputation of your company, what does this mean to you?
 - a. Probe: Which group of people do you consider to be your stakeholders? (If needed, ask for specific names for groups such as a governmental body or a nonprofit organization).
 - b. Probe: How do you think your external stakeholders view your company (mention the stakeholders named by the participant, not including employees)?
 - c. Probe: Out of the stakeholder groups you mentioned, who are most important to your company?
 - d. Probe: What do you wish your stakeholders to know about your company?
 - e. Probe: How would you like your stakeholders to think about your company?
 - f. Probe: Do you think your stakeholders have an accurate view of what your company does or represents?
 - g. Probe: Do you think their view of the company is consistent with your view of the company?
 - h. Probe: How, if at all, have you struggled with making sure your stakeholders know about and have an accurate view about the company?
9. Being a small business, what are some of the challenges that you face in trying to communicate to others about what your company does and what it stands for?
 - a. Probe: How, if at all, do you feel constrained by the size of your company?
 - b. Probe: Compared to large companies, what are some disadvantages that you have as a small business?
10. What are some of the opportunities you think are associated with being a small business?
 - a. Probe: What are some advantages you think you have over your larger rivals?
 - b. Probe: How has being small helped you in communicating to others about your company?
11. What do you think are some of the challenges and opportunities you face as a small business operating in the field of nanotechnology?
12. What organizations are you affiliated with?
 - a. Probe: Does your organization belong to any professional network or business associations?
 - b. Probe: Did your company initiate the relationship with other organizations?
 - c. Probe: What is the nature of the relationship between your company and with other organizations (e.g., partnership, network, etc.)?

13. Is there anything else I should know about your company's identity and reputation?

14. Do you have anything else to add about small businesses in nanotechnology?

15. Now I would like to review a list of different corporate documents that may be relevant to a company's identity and reputation. As I review each document type, please let me know if your company uses that particular document (yes or no).

- ☐ Annual reports
- ☐ Belief/mission statements (if not published elsewhere)
- ☐ Brochures
- ☐ Direct mail pieces
- ☐ E-mail alerts
- ☐ Fact sheets
- ☐ Media advisories
- ☐ Media kits
- ☐ Newsletters or magazines
- ☐ News releases (print or broadcast scripts)
- ☐ Public service announcements
- ☐ Speech text
- ☐ Web copy

a. Probe: Do you use any other corporate documents that I didn't mention?

16. Would you be able to share any of your corporate documents with me?

(NOTE 1: Emphasize that only the research team will see these documents and that the write up will NOT mention the company name).

17. Can you refer me to others working in small nanotechnology firms whom I may contact for an interview on this topic?

a. Probe: What is their email address?

b. Probe: Would you mind if I let them know you referred me?

18. May I contact you later if I have any additional questions regarding our interview?

Appendix C: Interviewing Guide for Individuals Familiar or Work with Small Nanotechnology Firms

1. Can you give me an overview of your organization?
 - a. Probe: What kind of responsibility does the organization have?
 - b. Probe: What is the purpose of the organization?
2. Please describe to you role in the organization.
 - a. Probe: What are your job responsibilities?
 - b. Probe: Who do you work with daily?
3. Please describe your organization's participation in the field of nanotechnology?
 - a. Probe: What are some ways that you help with the emergence of nanotechnology as a field?
 - b. Probe: How is the organization involved in the field?
4. When you think about identity of organizations, what do you think of?
 - a. Probe: How would you define identity? What does the term mean to you?
5. What about reputation? When you think about reputation, what do you think of?
 - a. Probe: How would you define reputation? What does the term mean to you?
6. When you think of about small businesses in nanotechnology, what do you think about in term of their identity and reputation?
 - a. Probe: What are the names of some small nanotechnology companies you know?
 - b. Probe: Thinking about the companies you mentioned, how do you think small nanotechnology companies stand out from their larger counter parts?
 - c. Probe: How, if at all, has the identity and reputation of these small companies in nanotechnology changed overtime?
7. What do you think are the roles of small businesses in nanotechnology?
 - a. Probe: How do they help with the growth of the field?
 - b. Probe: What can they provide that large companies cannot?
8. Can you describe some of the opportunities and challenges you think small companies face in trying to establish an identity and reputation in the field of nanotechnology?
 - a. Probe: Thinking about the companies you mentioned (name the specific companies mentioned previously), what are some of the advantages, if any, do you think they have over their larger counterparts?
 - b. Probe: How, if at all, do you think they are constrained by their size or age?
 - c. Probe: What are some of the drawbacks, if any, that prevents small companies from successfully compete against larger companies?

9. Is your organization affiliated with any small nanotechnology companies?
 - a. Probe: Do you have partnership with any small nanotechnology companies (ask for specific names of the companies)?
 - b. Probe: How did your organization first find out about the company?
 - c. Probe: What prompted your organization to become affiliated with the company?
 - d. Probe: What are the reputations of the nanotechnology companies you're affiliated with?
 - e. Probe: How did you find out about their reputation?
 - f. Probe: What is the nature of your affiliation with the company?
 - g. Probe: What criteria, if any, does your organization use to determine which company you become affiliated with?
10. Do you personally work with any of the small nanotechnologies companies your organization is affiliated with?
 - a. Probe: What is the nature of your working relationship with the companies?
11. Is there anything else I should know about the identity and reputation of small nanotechnology companies?
12. Can you refer me to another person whom I may contact for an interview on this topic?
 - a. Probe: Do you know of other government officials involved in nanotechnology at another city or state who may be able to help me with my study?
 - b. Probe: Do you know of anyone working at small nanotechnology firms whom I may contact for my study?
 - c. Probe: What is their email address?
 - d. Probe: Would you mind if I let them know you referred me?
13. May I contact you later if I have any additional questions regarding our interview?

Appendix D: List of Identity or Reputation Relevant Documents

From each nanotechnology firm, the researcher will collect the following internal and external documents published since the incorporation of the firms:

- ☐ Annual reports
- ☐ Belief/mission statements (if not published elsewhere)
- ☐ Brochures
- ☐ Direct mail pieces
- ☐ E-mail alerts
- ☐ Fact sheets
- ☐ Media advisories
- ☐ Media kits
- ☐ Newsletters or magazines
- ☐ News releases (print or broadcast scripts)
- ☐ Public service announcements
- ☐ Speech text
- ☐ Web copy

Appendix E: Telephone Consent Script

As I introduced myself in a previous email, my name is Nell Huang and I am a doctoral candidate at the University of North Carolina at Chapel Hill. I am conducting interviews with managers at small nanotechnology companies as well as government officials and journalists working in the nanotechnology space. The purpose of my study is to understand how small nanotechnology companies can build identity and reputation.

Your participation in this research is completely voluntary. This means that you do not have to participate in this interview unless you want to. Your responses will be confidential. The only persons who will have access to the interview data are me, my colleague, and my faculty adviser of this study at UNC Chapel Hill.

Although I am contacting you through your email address and telephone number, this identifying information will not be connected with your response. In addition, all data in this study will be reported anonymously. Your name and position or the name of your company will not be identified in my final report. If it is okay with you, I might want to use direct quotes from you, but these would only be quoted as coming from (“a manager at a small nanotechnology firm” / “a journalist from a regional newspaper” / “an official working at a state government”).

In this interview, you will be asked to answer a series of questions about the identity and reputation of small nanotechnology companies. This should take about (managers: 1 to 1.5 hours; journalists/government officials: 45 minutes to 1 hour). If there is a question that you would prefer not to answer, that's fine, we can just skip to the next question.

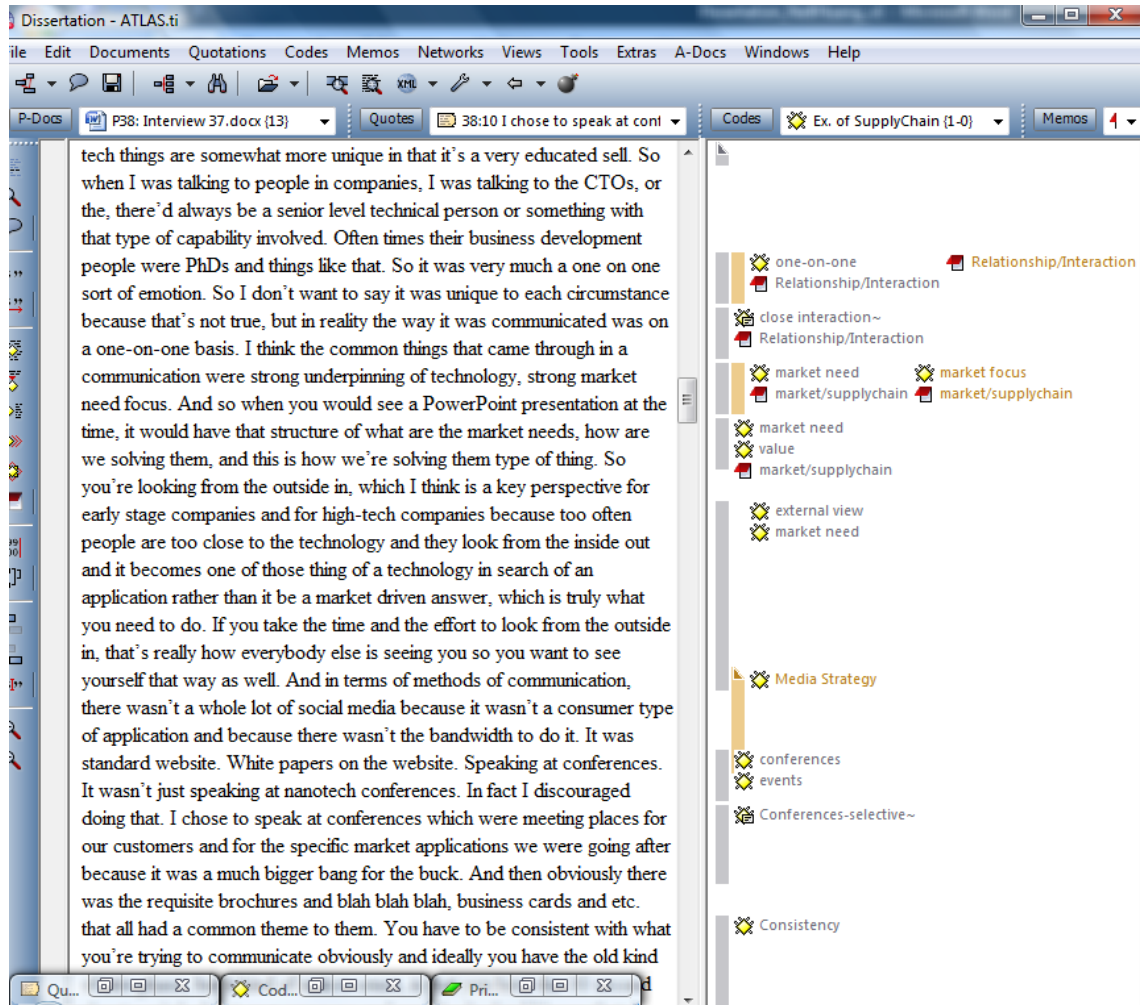
There are no anticipated physical risks from being interviewed. Additionally, there are no direct benefits. However, your participation will help researchers and organizations understand how small companies can build identity and reputation in an emerging field. I am also happy to share the final report with you when the study is completed. Do you have any questions?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu. If you do wish to contact IRB, you may refer to study #10-1678. Do you agree to participate in this study?

To ensure that I can later review and analyze your responses, I would like to record this interview. Do I have your permission to record this interview? (If yes, proceed; if no, say “That’s fine. I will just be taking notes and will not be recording this interview.”)

Thank you for your patience. Now, we will proceed with the interview. Please feel free to ask questions at any time during the interview. Again, you do not have to answer all questions, and you are free to withdraw from the interview at any time. You can also request for me to stop the recording at any time.

Appendix F: ATLAS Screenshot



Appendix G: Rokeach's (1973) 36 values

Terminal Values

Values concerned with an end-state

Value	Definition	Examples
Comfortable life	Concerned with comfort	Comforts, prosperous, affluent, well-off
Exciting life	Concerned with an exciting life	Stimulating, active, exhilarating, thrilling
Sense of accomplishment	Concerned with accomplishment	Accomplishment, contribution, achievement, attainment, culmination
World at peace	Concerned with freedom	Peace, peaceful, armistice, concord
World of beauty	Concerned with beauty in nature and the arts	Beauty, charming, splendid, elegant
Equality	Concerned with equality	Equality, equity, impartiality, fairness
Family security	Concerned with family security	Family, home, household, stability
Freedom	Concerned with freedom	Free, freedom, choice, liberty, opportunity
Happiness	Concerned with happiness	Happy, content, jubilant, euphoric
Inner harmony	Concerned with inner harmony	Balanced, harmony, orderly, aplomb, composure
Mature love	Concerned with social and spiritual intimacy	Intimacy, sexuality, spirituality, maturity
National security	Concerned with safety	Armed, defended, protected, shielded
Pleasure	Concerned with an enjoyable life	Enjoyment, leisure, satisfying, enjoyable
Salvation	Concerned with salvation redeemed	Salvation, immortality, heaven, delivered
Self-respect	Concerned with self-esteem	Self-esteem, self-assurance, worthy

Social recognition	Concerned with respect from others	Recognized, admired, accepted, appreciated
True friendship	Concerned with close companionship	Companionship, fellowship, comradeship, united
Wisdom	Concerned with mature understanding	Wisdom, discernment, sense, insight, perceptive

Instrumental Values

Values concerned with daily behaviors

Value	Definition	Examples
Ambitious	Concerned with hard work	Hard working, aspiring, enterprising, eager, energized
Broadminded	Concerned with open-mindedness	Open-minded, flexible, tolerant, unbiased, unprejudiced
Capable	Concerned with competence	Competence, effective, able, capable, proficient
Cheerful	Concerned with being light-hearted and joyful	Animated, bright, buoyant, cheery, fun, glad, jovial
Clean	Concerned with cleanliness	Clean, neat, tidy, undefiled, unadulterated
Courageous	Concerned with standing for one's beliefs	Courageous, bold, dauntless, undaunted, firm, unwavering
Forgiving	Concerned with a willingness to pardon	Pardon, forgiving, acquit, excuse, absolve, overlook
Helpful	Concerned with working for the welfare of others	Welfare, assist, support, serve, improve, better
Honest	Concerned with truth	Honest, true, moral, ethical, sincere
Imaginative	Concerned with being daring	Imaginative, daring, creative, original, clever, ingenious, inspired, visionary
Independent	Concerned with self-reliance	Independent, self-reliant, self-sufficient, autonomous, alone
Intellectual	Concerned with intellect	Intelligence, reflective, informed
Logical	Concerned with rationality	Logical, rational, rationality, consistent, reasoned, sound-minded

Loving	Concerned with affection	Love, tender, fond, beloved, charity, caring
Obedient	Concerned with obedience	Obedient, dutiful, observant, yielding
Polite	Concerned with courtesy	Polite, courteousness, well-mannered, mannerly, civil, proper
Responsible	Concerned with being responsible	Responsible, dependable, reliable, accountable, answerable
Self-control	Concerned with self-control	Self-control, self-disciplined, restrained, controlled, perseverant

Appendix H: Customized Values Instrument

Terminal Values

T1 Comfortable Life

affluence	economically	money	richer
affluent	economics	moneyed	riches
affordable*	empire	moneys	richest
cheaper *	empires	paid	salary
comfort	finances	pay	savings*
comfortable	financial	pays	stipend
comforts	financially	possession	wage
cost-effective*	fund**	possessions	wages
cost-efficient*	funding*	profitability*	wealth
currencies	funds*	profitable**	wealthy
currency	grant*	prosperous	well-off
earning	grants**	remuneration	well-to-do
earnings	income	remunerations	
economic	investment*	resources	
economical*	low-cost*	rich	

T2 Exciting Life

active	cutting-edge*	interested	sensation
breakthrough*	emerging*	interesting	sensational
celebrate	enthusiasm	invigorated	state-of-the-art*
celebrated*	enthusiastic	invigorating	stimulating
celebrates	excite	moving	surprised
celebration	excited*	new	thrilled
challenge	excitement	newest	thrilling
challenged	exciting	newly*	unprecedented*
challenges	exhilarating	news	versatile**
challenging	forefront*	next-generation*	versatility*
compelling	interest	novel*	sensation

T3: Sense of Accomplishment

accomplish	award*	execution	realization
accomplished	awarded*	feat	realized
accomplishes	awards**	feats	realizes
accomplishment	best-in-class*	featured*	resulting*
accomplishments	complete	fulfill	succeed
achieve	completed	fulfilling	success
achieved*	completes	fulfillment	successful*
achievement	completion	impact*	successfully*

achievements	comprehensive*	impressed*	unmatched*
achieves*	contributes	made	unsurpassed*
achieving*	contributing	optimized*	upheld
acquire	contribution	passed	well-positioned*
acquired	culmination	Prize*	win*
acquires	effect	publish**	winner**
advantage*	effecting	published*	winners*
advantages*	effects	publishes**	winning*
attain	excel**	publishing**	wins**
attained	excelled*	ratified	won*
attainment	exceptional*	ratifies	
attains	exceptionally*	ratify	

T4: World at Peace

amity	nonviolence	peaceably	tranquil
armistice	nonviolent	peaceful	tranquility
concord	peace	peacefulness	

T5: World of Beauty

amazing*	beauty	elegant	nature
art	best	excellent	quaint
artistic	charm	extraordinary*	remarkable
arts	charming	gorgeous	splendid
attractive	charms	magnificence	splendor
attractiveness	comeliness	magnificent	wonderful
beautiful	elegance	natural	

T6: Equality

access*	corresponding	fair	match
accessible**	equal	fairness	peers
available*	equality	impartial	sameness
belong	equalization	impartiality	similar
congruence	equity	just	similarity
congruent	equivalence	like	uniform
cooperate	equivalent	likeness	uniformity

T7: Family Security

child	household	protect	son
children	households	protected	sons
daughter	houses	protecting	stability
daughters	husband	protects	stabilizing
family	husbands	refuge	stable
father	mother	sanctuary	stepfamilies
fathers	mothers	security	unthreatened
home	parent	shelter	wife
homes	parenting	sheltered	wives
house	parents	shelters	

T8: Freedom

ballot	freedom	liberty	unrestrict
ballots	freely	opportunistic	unrestricted
choice	latitude	opportunities	vote
choices	leeway	opportunity	votes
democracy	liberated	privilege	
democratic	liberates	privileged	
free	liberation	privileges	

T9: Happiness

content	euphoria	happy	jubilee
contented	euphoric	jubilance	pleased
contentment	happiness	jubilant	

T10: Inner Harmony

aplomb	equilibrium	order	poised
balance	harmony	orderliness	sanctity
balanced	health*	orderly	self-regulated
composure	healthy**	poise	serenity

T11: Mature Love

complete	heart	matures	sexual
completed	hearts	maturity	sexuality
develop	holy	perfect	spirit
developed	infallible	perfected	spirits
develops	intimacy	perfection	spiritual
divine	intimate	righteous	spirituality
divinity	mature	righteousness	

T12: National Security

armed	guard	militant	safeguarding*
army	guarded	military	safety
defended	guards	navy	shield
defends	marine	safe	shielded
defense	marines	safeguarded	

T13: Pleasure

bliss	feasted	lounge	rests
blissful	gratified	lounges	satisfied
delight	gratify	pleasurable	satisfy
delights	indulge	pleasure	satisfying
enjoyable	indulgent	pleasures	vacation
enjoyed	indulges	relaxed	
enjoyment	leisure	rest	
feast	leisurely	rested	

T14: Salvation

deliver	emancipates	heavens	redeemed
deliverance	emancipation	immortality	redeems
delivered	eternal	preserve	salvation
delivers	eternally	preserved	save
emancipate	eternity	preserves	saved
emancipated	heaven	redeem	saves

T15: Self-Respect

confidence	esteems	self-esteem	worthy
confident	self-assurance	self-respect	
esteem	self-assured	self-respected	
esteemed	self-confidence	worth	

T16: Social Recognition

accept	distinct*	key*	reputable**
accepted	distinction*	lead*	reputation*
acknowledge	distinctive**	leader*	respect
acknowledged	distinguish	leading*	respected
acknowledges	distinguished	leads**	respects
acknowledging	distinguishes	major*	seasoned
admiration	established*	official	senior
admire	executive	professional*	significance*
admired	executives	qualification	significant*
admires	fine	qualifications	significantly*
appreciate	finer	qualifies	specialty*
appreciated	finest	quality*	specialized*
appreciates	flagship*	recognizable	specializes*

appreciation
appreciative
approval**
approved*

high-performance*
high-performing*
importance
important

recognize
recognized
renown**
renowned*

specializing*
superior*
valuable*

T17: True Friendship

agree**
agreed
agreement*
alliance**
alliances*
arrange**
arranged**
arrangement*
associates
associating
association
brethren
bridge*
bridged**
brotherhood
brotherly
camaraderie
close

closeness
collaborate*
collaboration**
collaborations*
collaborative*
commit*
commitment*
committed*
common
commonality
companionship
company
comradeship
congregate
congregates
congregating
congregation
congregations

consortium*
fellow
fellowship
fellowships
fraternal
fraternity
friends
friendship
interdisciplinary*
joint*
member*
members**
membership**
participate**
participated**
participates*
participating**
participation**

participations**
partnering*
partners*
partnership**
partnerships*
relate
relationship
relationships
team*
teamed*
teams**
together
unite
united
unites
workshop*

T18: Wisdom

advanced*
astute
discern
discerning
discernment
experience*
experienced*
expert
expertise
experts

insight
insightful
insights*
learn
learned
learning
learns
mind
perceptive
savvy

sense
sensible
shrewd
shrewdness
studied
studious
study
studying
thought
thoughtful

thoughts
understand
understanding
understands
understood
unique*
uniquely*
wisdom
wise

Instrumental Values

I1: Ambitious

ambition
ambitious
aspire
aspires
aspiring
build

eager
eagerly
effort*
efforts**
energetic
energized

hard-working
long
longed
longing
longs
long-term*

searches
searching
stretch
stretches
strives
struggle

building	energy	mission*	struggles
builds	enterprising	missions**	struggling
built	expand*	move	target*
busy	expanding*	moves	targets**
compete**	expands**	power	targeting**
competes**	expansion	powers	transform**
competition*	expansive*	power-seeking	transforming*
competitive*	forward	proactive**	transforms**
continue	future*	proactively*	work
continued	generate*	produce	working
continues	generates**	produces	works
continuing	generating*	progress*	yearn
continuous*	goal*	progresses**	yearning
desire	goals**	progressing**	yearns
drive**	grow	rigorously*	zeal
driver*	growing	rise	zealous
drives**	grown	rose	
driving*	growth	search	

I2: Broadminded

array*	flexibility	open-mindedness	tolerant
breadth*	flexible	openness	unbiased
broad*	global*	opens	unprejudiced
broaden*	globally*	pliable	varieties*
broadminded	international*	potential	variety*
diverse**	malleable	progressive	vast*
diversified*	nationwide*	range**	worldwide*
diversity**	open	ranges*	
expanded*	open-minded	tolerance	

I3: Capable

abilities**	competence	proficient	strengths**
ability*	competent	qualified	suited
able	effective	qualifies	talent**
apt	effectively	qualify	talents*
capabilities*	fitted	skill	well-suited
capability*	performance*	skilled	
capable	preferred*	skills	
capacity*	productive	strength*	

I4: Cheerful

animated	fun	joyous	pleasant
bright	glad	light-hearted	positive*
buoyant	gladness	lively	refreshing
cheer	gleeful	merriment	sunny
cheerful	jolly	merry	

cheery

jovial

mirth

I5: Clean

clean
cleaner*
cleanliness
cleans
cleansed
clear
cleared
distill
distilled
distills

immaculate
neat
pure
purge
purges
purified
purify
refine
refined
refines

scrub
scrubbed
scrubbing
scrubs
stainless
tidy
unadulterated
uncontaminated
undefiled
uninfected

unpolluted
unsoiled
unstained
wash
washed
washes
washing

I6: Courageous

believe*
believed**
believes*
bold
brave
bravery
brazen

courage
courageous
dauntless
fearless
firm
gallant
game

hardy
hero
heroes
heroic
heroine
intrepid
staunch

stouthearted
unafraid
undaunted
unwavering
valor
valorous

I7: Forgiving

absolve
absolves
absolving
acquit
acquits
acquitting
excuse
excused
excuses
excusing
forgave

forgive
forgiven
forgives
forgiving
grace
merciful
mercy
overlook
overlooked
overlooks
pardon

pardoned
pardons
reconcile
reconciles
reconciliation
release
released
releasing
relent
remit
remit

remitted
remitting
repent
repentance
repentant
repented
restore
restored
restores

I8: Helpful

accelerator*
admonish
admonished
admonishes
admonition
advance*
advancement**
advancements*

benefited
benefits
better
bettered
betters
carry
customize*
customized**

enhancing*
gave
given
gives
giving
help
helped
helpful

served
serves
service
services*
serving
share
shared
shares

advances**
 advancing*
 aid
 aids
 alleviate*
 alleviated**
 alleviates**
 applicability*
 application**
 applications*
 assist
 assistance
 assisted
 assisting
 assists
 behalf*
 benefit

customizes**
 easy-to-use*
 edified
 edifies
 edify
 enable**
 enabled**
 enables*
 enabling*
 encourage
 encouraged
 encouragement
 encourages
 encouraging
 enhance*
 enhanced**
 enhances**

helpfulness
 helping
 helps
 improve
 improved*
 improves
 improving*
 minister
 ministered
 ministers
 nurture
 nurtured
 nurtures
 proponent*
 rescue
 rescues
 serve

sharing
 strengthen
 strengthens
 support
 supportive
 supports
 useful**
 usefulness*
 utility*
 value*
 voluntarily
 voluntary
 volunteer
 volunteers
 welfare

I9: Honest

certification*
 ethical
 ethics
 exact
 good
 goodness
 honest

honestly
 honesty
 integrity
 legitimate
 legitimately
 moral
 morality

morals
 sincere
 sincerely
 sincerity
 straightforward
 trustworthy
 truth

truths
 upright
 upstanding
 true

I10: Imaginative

clever
 cleverly
 create
 creating
 creation
 creative
 creativity
 creator
 dare
 dares
 daring
 design*
 designed**
 designing**
 designs**

discovered
 discovering
 discovers
 discovery
 disruptive*
 entrepreneurial*
 entrepreneurship*
 first*
 imagination
 imaginations
 imaginative
 imagine
 imagined
 imagines
 ingenious

innovation*
 innovations**
 innovative*
 innovator*
 inspire
 inspired
 inspires
 inspiring
 invent
 invention**
 inventions*
 inventive
 inventor*
 origin
 original

originally
 originate
 originates
 patent**
 patented*
 patents*
 pioneer**
 pioneers*
 revolutionary*
 vision
 visionary
 visions

I11: Independent

alone	independent	self-governed	self-supporting
autonomous	self-direct	self-governing	self-supportive
autonomy	self-directed	self-reliant	separate
independence	self-directs	self-sufficient	separation

I12: Intellectual

brilliance	informed	knowledgeable	science*
brilliant	intellect	license*	sciences**
brilliantly	intellectual	licensed**	scientific*
educate	intellectualized	licenses*	smart
educated	intellectuals	licensing*	strategic*
educates	intelligence	mindful	strategies**
educating*	knowhow*	reflect	strategy*
educational	know-how*	reflective	
inform	knowledge	reflects	

I13: Logical

coherence	formulates	rationality	structured
coherent	formulating	rationalize	structures
coherently	logic	rationalized	tested*
consistency	logical	rationalizing	testing*
consistent	plan	reason	valid
consistently*	planned	reasoned	validate*
coordinate	planning	reasoning	validated*
coordinators	plans	solution**	validates**
deliberate	practical*	solutions*	validation*
deliberates	precise*	solve*	verification*
deliberation	proprietary*	solved**	verified**
examine	prove**	sound-mind	verifies**
examining	proven*	sound-minded	verify**
formulate	proves**	sound-mindedly	
formulated	rational	structure	

I14: Loving

affection	charity	kindness	tenderly
affectionate	concern	love	tenderness
affections	dear	loved	thoughtful
ardor	devoted	loves	welcome
beloved	devotion	loving	welcomed
care	fond	receptive	welcomes
cares	fondness	receptivity	welcoming
caring	kind	tender	

I15: Obedient

abiding	guidelines	policies	sinner
adherent	keep	policy	sinning
bylaws	kept	receptive	sins
command	law	registered*	standard*
commanded	lawful	regulation**	standards**
commandments	laws	regulations*	submission
commands	obedience	requirement*	submitted
compliance*	obedient	requirements**	worship
govern	obey	rule	worships
governable	obliging	rules	yield
governing	observance	servile	yielded
government	observant	sin	yielding
governments	observe	sinful	yields
governors	observing	sinned	

I16: Polite

civil	cordially	honor	polite
civility	courteous	honored*	proper
considerate	courteousness	honoring	thankful
consideration	courtesy	honors	thanks
considers	courtly	mannerly	well-mannered
cordial	diplomatic	manners	

T17: Responsible

accountable	eco-friendly*	faithful	reliant
answerable	effective*	green*	renewable*
bound	efficiencies*	greener*	respond*
chargeable	efficiency	liable	responds**
clean-technology*	efficient	oblige	response**
dedicated*	energy-efficient*	obligated	responses**
delivering*	environment*	obliged	responsibilities
dependability	environmental*	promise*	responsibility
dependable	environmentally-friendly*	promised**	responsible
duties	expectation**	promises**	responsive*
dutiful	expectations*	reliability*	sustainability*
duty	faith	reliable	sustainable*

I18: Self-Control

control*	focus*	restrain	self-disciplined
controlled	focuses*	restrained	self-mastery
discipline	focusing*	restraining	self-regulated
disciplined	moderate	self-control	temperance
discretion	perseverant	self-denying	

*Terms added from pilot study

**Variations of existing and added terms from pilot study

Appendix I: Coding Protocol

I. Article Information

A. Article ID

For the article ID, the coder should note down the Article ID at the top of each article.

B. Publication Name

Here, coder should enter in the publication name exactly as it appears in the article information.

C. Section/Page

For this variable, the coder will note down the exact section or page(s) where the story appeared. Coder should refrain from spelling out the page number of the section and use only letters and numbers. For example, The New York Times front page should be entered in as “A1,” and not “front page” or “page 1.”

D. Article Type

Coders are to choose only one option from the following article types: feature news, hard news, opinion/editorial, and review.

1. *Feature News*

Feature news is not necessarily time-sensitive and often explores an issue in depth. Feature news focuses on things that people have a great deal of interest in but may not be the most pressing issues of the day. Feature news includes feature stories, interviews, organizational or personality profiles, reviews of a particular product, event, or function, and trend stories.

2. *Hard News*

Hard news refers to the news of the day. It often follows the news reporting style, starting with a summary that describes what happened, where, when, to/by whom, and why. Hard news includes breaking news and investigative pieces.

3. *Opinion/Editorial*

Opinion or editorial articles include advice columns, columns, editorials, or letter to the editor. They express opinions and are written from a personal point of view, although they are often supported with facts and evidence.

4. *Review*

Reviews include articles that are reviews of a particular group, event, or a television program. This category does NOT include product reviews; product reviews should be coded as “feature news.”

II. Company variables

A. Focal Company

Coder will enter in the name of the focal company. This will be predetermined and coder will be able to identify the name of the company from the Story ID.

Following is a list of focal companies.

[Company names excluded here for confidentiality purposes.]

B. Dominance

Coding option: Dominant, average, or in passing.

The coder will note how dominant the focal company is in the article. For “dominant,” the focal company is crucial to the article; without it, there would be a substantial hole in the reporting. The company name need not appear in the first few paragraphs for it to be dominant. For “average,” the focal company is one of the many focuses in the article; without it the article would still retain its substantial content. For “in-passing,” the focal company is only a minor mention in the article. If the mention of the focal company were excluded, the reader would not notice a difference.

For articles where there are blocks or multiple stories (such as in a brief), if the focal company is main topic in the block/story where the company is mentioned, it should be coded as “average” rather than “in passing” or “dominant.”

C. News Value

Coder will need to determine why the focal company attracted media attention/why the company name was included in the article. [Additional options may be added based on interview data.] Coder will choose only one of the following options.

1. *Awards & Recognitions*

Examples include company receiving an award, being named or recognized as a top company in a certain area, etc.

2. *Innovation*

Examples include development of new products or services, discovery of new scientific processes, molecules, or instruments.

3. *Cooperative arrangements*

Examples include corporate or organizational partnerships. Coder should code for this option when the article is explicit about the formation of an arrangement or partnership between two or more companies.

4. *Conferences or Events*

Examples include discussions of a company’s participation in a conference, workshop, or other types of events. Articles that are event listings without

description about the company should be deleted. See Section V for articles that should be deleted.

5. *Facility*

Examples include expansion of a company's facility or its relocation to another location. Articles describing a company's laboratory conditions can also be coded for this option.

6. *Financial performance*

Examples include discussion of initial public offerings, annual reports, fiduciary responsibility, or monetary expenditures. Also included are discussions of funding, venture backing, etc.

7. *Mergers and acquisitions*

Examples include discussion of possible M&A, evaluation of M&A, commentary regarding eminent M&A, or description of M&A process. This option is specifically related to company M&As only and excludes other types of acquisitions such as patent acquisitions.

8. *Lawsuits*

Examples include litigations brought on by the focal company or lawsuits against the focal company, lawsuits regarding intellectual property of scientific discovery)

9. *Legislation or governmental affairs*

Examples include compliance to Food and Drug Administration regulations on the use of nanomaterials, reports from the Environmental Protection Agency, or government recall on nanotech-related products.

10. *Leadership*

Examples include the appointment of new executive positions, management promotions, or retirement of current executives. Other examples include profile, features, or discussions about current managers or executives.

11. *Other*

If the coder deems the above categories to be inappropriate for the content under consideration, he or she may select "other." If the coder selects this option, he or she is required to enter an appropriate category description.

III. Reputation Attributes

For this variable, coder will check as many reputation attributes as applies in the article content. In addition, for each attribute selected, the coder will have to determine whether the content regarding the specific attribute connotes a positive or negative sentiment.

Example: An article concerns a company which has produced defective products and has not responded to customers who have complained about the product. In this case, the coder would select the products or services attribute “makes high quality products and delivers quality services.” For this particular attribute, the coder would select “negative” for the sentiment. The coder would also select the organizational attribute “is responsible to the demands of its constituents,” and “negative” for sentiment.

The coding options for this section are summarized in the table below.

Overall Categories	Attributes	Sentiment
<i>Leadership</i>	Has a clear vision for its future	Positive / Negative
	Has strong and credible leaders	Positive / Negative
	Has leaders who are visible and accessible	Positive / Negative
	Makes difficult business decisions in a timely way	Positive / Negative
<i>Organization</i>	Has an effective system of governance	Positive / Negative
	Maintains an entrepreneurial spirit	Positive / Negative
	Is responsive to the demands of its constituents	Positive / Negative
	Adapts quickly to change	Positive / Negative
	Invites open and frank communications	Positive / Negative
<i>Performance</i>	Consistently delivers strong bottom line results	Positive / Negative
	Shows strong prospects for future growth	Positive / Negative
	Is effectively focused on creating stakeholder value	Positive / Negative
	Tends to out-perform its competitors	Positive / Negative
	Lives up to its promises and commitments	Positive / Negative
<i>Products or Services</i>	Is a leader in innovation	Positive / Negative
	Makes high quality products and delivers quality services	Positive / Negative
	Stands behind its products and services	Positive / Negative
	Makes products and delivers services that improve people's lives	Positive / Negative
<i>Social Responsibility</i>	Helps improve local communities	Positive / Negative
	Acts responsibly to protect the environment	Positive / Negative
	Supports good causes and organizations	Positive / Negative
	Is committed to developing sustainable business practices	Positive / Negative
	Demonstrates honesty and integrity in its actions and communications	Positive / Negative
<i>Workplace</i>	Rewards its employees fairly	Positive / Negative
	Hires the best employees	Positive / Negative
	Is a good company to work for	Positive / Negative
	Encourages employee growth & development	Positive / Negative
	Recognizes and supports employee diversity	Positive / Negative
	Values employee safety	Positive / Negative
	Encourages development of women and minorities	Positive / Negative

A. Leadership

Coders should code for attributes under the leadership category when an executive or manager of the focal company is the main subject of interest rather than the focal company. Examples include management promotions or removals, management salaries or compensation, or mentions of an executive or manager's personal character or aspects of his or her lives.

If coders code for the leadership attributes, he or she will need to also code for whether leader mentioned in the media is the CEO of the firm. If so, he or she will also need to code for the variable specifically associated with the CEO.

Competence: can be described with terms such as experienced, capable, competent, knowledgeable of business issues, independent, well-informed, efficient intelligent, seasoned (or opposite of any of these).

Integrity: can be described with terms such as trustworthiness, sincerity, honesty, morality, values, keeps promises, principled, walks the walk (or opposites of any of these).

Reliability: can be described with terms such as dependable, reliable, careful, stable, strong, decisive, hardworking, conscientious (or opposite of any of these).

Charisma: can be described with terms such as dignified, inspiring, humble, likable, confident, possesses sense of humor, kind, democratic, possesses people skills, inspires confidence (or opposite of any of these).

Personal: can be described with physical appearances factors, age, health, religion, previous occupation, education, wealth, family, life style, possessions, social events, hobbies, community activities and leisure activities.

B. Organization

Coders should select the attributes of organization when the content discusses the governance of the focal company. Examples include discussions on the focal company ability to maintain an entrepreneurial spirit, its responsiveness to demands of its constituents such as customers and suppliers, and its ability to adapt to internal and external change (e.g., change in organizational structure due to M&A or change in environmental surroundings such as the recession).

C. Performance

Coders should code for performance attributes when the content includes information on the focal company's consistency in delivering strong bottom line

results, its prospect of future growth and its ability to outperform its competitors and to live up to its promises and commitments.

D. Products or services

Coders should code for attributes under this dimension when the content relates to the focal companies products or services. Examples include the stories about focal company's ability to develop new products or services, the performance of its products, the quality of its products or services, and discussion on issues related to the focal company's manufacturing or customer service.

E. Social Responsibility

Coders should code for social responsibility attributes when the content relates to the focal company's activities concerning the environment, human rights, financial integrity, and other ethical issues. Philanthropy can also be a factor here.

F. Workplace

Coders should select the attributes of workplace when the content concerns the focal company's employees or the actual setting of the company's workplace. Examples include discussions about workplace safety, employee relations, working environment, and employee compensation.

IV. Association

For this variable, coders should first identify whether the focal company is affiliated or partnered with another organization. If so, then the coder will need to identify the type of organization and specify the name of the organization. The coder should *not* code for this variable if the company is merely discussed in relation to another organization. There must be an official or formal relationship between the focal company and the other organization. The coder may choose more than one of the following options if the focal company is affiliated with more than one organization in the content.

IMPORTANT: In order to code for any type of association, there needs to be an explicit discussion of an association or any type of ties between the two company, rather than just a mere mention in passing.

- A. Academic institutions (e.g., University of North Carolina, Duke University, Harvard University)
- B. Government organizations (e.g., chamber of commerce, FDA, EPA)
- C. Research institutions (e.g., Foresight Institute, Cancer Research Institute)
- D. Nanotechnology companies
- E. Non-nano specific companies (e.g., IBM, Microsoft)
- F. Non-profit organizations (e.g., American Cancer Society)

V. Delete variables

Coder should delete the article if it includes any of the following.

- Classifieds
- Duplicate articles
- Index of stories
- Obituary
- Online directory
- Wedding notices
- No mention
- Quotes only

REFERENCES

- Abraham, S., Friedman, B., Khan, R., & Skolnik, R. (2008). Is publication of the Reputation Quotient (RQ) sufficient to move stock prices? *Corporate Reputation Review*, 11(4), 308-319.
- Acs, Z. J. (1999). *Are small firms important?: Their role and impact*. Boston, MA: Kluwer Academic.
- Albert, S., & Whetten, D. A. (1985). Organizational identity. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 7, pp. 263-295). Greenwich, CT: JAI Press.
- Aldrich, H. A. (1999). *Organizations evolving*. London: Sage Ltd.
- Aldrich, H. A., & Fiol, C. M. (1994). Fools rush in? The institutional context of industry creation. *Academy of Management Review*, 19(4), 645-670.
- Alvarez, S. A., & J. B. Barney (2001). How entrepreneurial firms can benefit from alliances with large partners. *Academy of Management Executive*, 15(1), 139-148.
- Alvesson, M. (1990). Organization: From substance to image? *Organization Studies*, 11, 373-394.
- Apéria, T., Brønn, P., & Schultz, M. (2004). A reputation analysis of the most visible companies in the Scandinavian countries. *Corporate Reputation Review*, 7(3), 218-230.
- Aust, P. J. (2000). *Communicated values as indicators of organizational identity: An examination of the United Church of God, an international association's first five years*. Unpublished doctoral dissertation. University of Oklahoma, Norman.
- Aust, P. J. (2004). Communicated values as indicators of organizational identity: A method for organizational assessment and its application in a case study. *Communication Studies*, 55(4), 515-534.
- Baker, W. E., & Sinkula, J. M. (2009). The complementary effects of market orientation and entrepreneurial orientation on profitability in small businesses. *Journal of Small Business Management*, 47(4), 443-464.
- Baum, J. A., Calabrese, C., T., & Silverman, B. S. (2000). Don't go it alone: Alliance network composition and startups' performance in Canadian biotechnology. *Strategic Management Journal*, 21(3), 267-294.

- Benoit, W., & Holbert, R. (2008). Empirical Intersections in Communication Research: Replication, Multiple Quantitative Methods, and Bridging the Quantitative-Qualitative Divide. *Journal of Communication*, 58(4), 615-628.
- Bouchikhi, H., Fiol, C. M., Gioia, D. A., Golden-Biddle, K., Hatch, M. J., Rao, H., Rindova, V. P., & Schultz, M. (1998). The identity of organizations. In D. Whetten & P. C. Godfrey (Eds.). *Identity in organizations: Building theory through conversations* (pp. 33-80). Thousand Oaks, CA: Sage Publications.
- Bouchikhi, H., & Kimberly, J. R. (2008). *The soul of the corporation: How to manage the identity of your company*. Upper Saddle River, NJ: Wharton School Publishing.
- Calof, J. L. (1993). The impact of size on internationalization. *Journal of Small Business Management*, 31(4), 60-69.
- Cancel, A., Cameron, G., Sallot, L., & Mitrook, M. (1997). It depends: A contingency theory of accommodation in public relations. *Journal of Public Relations Research*, 9(1), 31-63.
- Carolsson, B. (1999). Small business, entrepreneurship, and industrial dynamics. In Z. J. Acs (ed.), *Are small firms important?: Their role and impact* (pp. 99-110). Boston, MA: Kluwer Academic.
- Carroll, C. E. (2008a). Corporate reputation. In W. Donsbach (Ed.), *The international encyclopedia of communication*, Vol. III (pp. 1019-1021). Oxford, UK: Blackwell Publishing.
- Carroll, C. E. (2008b). Organizational image. In W. Donsbach (Ed.), *The international encyclopedia of communication* (pp. 3464-3468). New York, NY: Blackwell Publishing.
- Carroll, C. E. (2009). The relationship between firms' media favorability and public esteem. *Public Relations Journal*, 3(4), 1-34.
- Carroll, C. E. (2010). Should firms circumvent or work through the news media?. *Public Relations Review*, 36, 278-280.
- Carroll, C.E. (2011a). *Corporate reputation and the news media: Agenda-setting within business news in developed, emerging, and frontier markets*. New York: Routledge.
- Carroll, C. E. (2011b). The role of the news media in corporate reputation management. In R. J. Burke, G. Martin, & C. L. Cooper (Eds.). *Corporate reputation: Managing threats and opportunities*. Surrey, UK: Gower Publishing.

- Carroll, C. E., & McCombs, M. E. (2003). Agenda-setting effects of business news on the public's images and opinions about major corporations. *Corporate Reputation Review*, 6(1), 36-46.
- Chen, M. J., & Hambrick, D. C. (1995). Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. *Academy of Management Journal*, 38(2), 453-482.
- Cheney, G. (1992). The corporate person (re)presents itself. In E. L. Toth & R. L. Heath (Eds.), *Rhetorical and critical approaches to public relations* (pp. 165-183). London: Lawrence Erlbaum Associates.
- Cheney, G. (2000). Interpreting interpretive research: Toward perspectivism without relativism. In, S. R. Coleman & M. S. Poole (Eds.), *Perspectives on organizational communication* (pp. 17-45). New York: Guilford Press.
- Cheney, G., & Christensen, L. T. (2001). Organizational identity: Linkages between internal and external communication. In F. M. Jablin & L. L. Putnam (Eds.), *The new handbook of organizational communication: Advances in theory, research, and methods* (pp. 231-270). Thousand Oaks, CA: Sage Publications.
- Cheney, G., & Vibbert S. L. (1987). Corporate discourse: Public relations and issue management. In F. M. Jablin, L. L. Putnam, K. H. Roberts, & L. W. Porter (Eds.). *Handbook of organizational communication: An interdisciplinary perspective* (pp. 165-194). Newbury Park: Sage Publications.
- Clegg, S. R., Rhodes, C., & Kornberger, M. (2007). Desperately seeking legitimacy: Organizational identity and emerging industries. *Organization Studies*, 28(4), 495-513.
- Cole, R. T. (1989). Improving your small organization's image. *Public Relations Journal*, 45(6), 26-27.
- Conway, M. (2006). The subjective precision of computers: A methodological comparison with human coding in content analysis. *Journalism & Mass Communication Quarterly*, 83, 186-200.
- Corbin, J. M., & Strauss, A. L. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Los Angeles: Sage Publications.
- Corley, K. G., & Gioia, D. A. (2004). Identity ambiguity and change in the wake of a corporate spin-off. *Administrative Science Quarterly*, 49, 173-208.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.

- Creswell, J. W., & Plano, C. V. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications.
- David, P., Kline, S., & Dai, Y. (2005). Corporate social responsibility practices, corporate identity, and purchase intention: A dual-process model. *Journal of Public Relations Research*, 17(3), 291-313.
- Deeds, D. L., Mang, P. Y., & Frandsen, M. L. (2004). The influence of firms' and industries' legitimacy on the flow of capital into high-technology ventures. *Strategic Organizations*, 2(1), 9-34.
- Deephouse, D. L. (2000). Media reputation as a strategic resource: An integration of mass communication and resource-based theories. *Journal of Management*, 26(6), 1091-1112.
- Deephouse, D. L., & Heugens, P. (2009). Linking social issues to organizational impact: The role of infomediaries and the infomediary process. *Journal of Business Ethics*, 86(4), 541-553.
- Deephouse, D. L., & Suchman, M. (2008). Legitimacy in organizational institutionalism. In R. Greenwood, C. Oliver, R. Suddaby, & K. Shalin (Eds.), *The Sage handbook of organizational institutionalism* (pp. 49-77). Los Angeles, CA: Sage Publications.
- DeVault, M. L., & McCoy, L. (2006). Institutional ethnography: Using interviews to investigate ruling relations. In D. E. Smith, *Institutional ethnography as practice* (pp. 15-44). Lanham, MD: Rowman & Littlefield Publishers, Inc.
- Díez-Vial, I. (2009). Firm size effects on vertical boundaries. *Journal of Small Business Management*, 47(2), 137-153.
- Diggs-Brown, B. (2007). *The PR styleguide: Formats for public relations practice* (2nd ed.). Belmont, CA: Thomson Wadsworth.
- DiMaggio, P., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 147-160.
- Doorley, J., & Garcia, H. F. (2007). *Reputation management: The key to successful public relations and corporate communication*. New York: Routledge.
- Duhé, S. (2009). Good management, sound finances, and social responsibility: Two decades of U.S. corporate insider perspectives on reputation and the bottom line. *Public Relations Review*, 35(1), 77-78.

- Dutton, J. E., & Dukerich, J. M. (1991). Keeping an eye on the mirror: image and identity in organizational adaptation. *Academy of Management Journal*, 34(3), 517-554.
- Dutton, J. E., Dukerich, J. M., & Harquail, C. V. (1994). Organizational image and identification. *Administrative Science Quarterly*, 39, 239-263.
- Einwiller, S., Carroll, C. E., & Korn, K. (2010). Under what conditions do the news media influence corporate reputation? The roles of media systems dependency and need for orientation. *Corporate Reputation Review*, 12(4), 299-315.
- Elsbach, K. D., & Kramer, R. M. (1996). Members' response to organizational identity threats: Encountering and countering the Business Week Rankings. *Administrative Science Quarterly*, 41, 442-476.
- Evatt, D. L., Ruiz, C., & Triplett, J. (2005). Thinking big, staying small: Communication practices of small organizations. *International Association of Business Communicators Research Foundation*.
- Ezzy, D. (2002). *Qualitative analysis: Practice and innovation*. London: Routledge.
- Feindt, S., Jeffcoate, J., & Chappell, C (2002). Identifying success factors for rapid growth in SME e-commerce. *Small Business Economics*, 19, 51-62.
- Fombrun, C. (1996). *Reputation: Realizing value from the corporate image*. Boston: Harvard Business School Press.
- Fombrun, C., Gardberg, N., & Sever, J. (2000). The Reputation Quotient: A multi-stakeholder measure of corporate reputation. *Journal of Brand Management*, 7 (4), 241-255.
- Fombrun, C., & Shanley, M. (1990). What's in a name? Reputation building and corporate strategy. *Academy of Management Journal*, 33, 233-258.
- Fontana, A., & Frey, J. H. (2004). The interviewing: From neutral stance to political involvement. In N. Denzin & Y. Lincoln, (Eds.), *Handbook of qualitative research* (3rd ed.), (pp. 695-727). Thousand Oaks, CA: Sage.
- Fulford, H., & Rizzo, A. (2009). A conceptual model for the strategic orientation of small firms. *Journal of Enterprising Culture*. 17(1), p. 25-54.
- Gardberg, N., & Fombrun, C. (2002). The global reputation quotient project: First steps towards a cross-nationally valid measure of corporate reputation. *Corporate Reputation Review*, 4, 303-307.
- Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Berkeley: University of California Press.

- Gilpin, D. (2008). Narrating the organizational self: Reframing the role of the news release. *Public Relations Review*, 34(1), 9-18.
- Gioia, D. A., Schultz, M., & Corley, K. G. (2000). Organizational identity, image and adaptive instability. *Academy of Management Review*, 25(1), 63-81.
- Glynn, M. A. (2000). When cymbals become symbols: Conflict over organizational identity within a symphony orchestra. *Organization Science*, 11(3), 285-298.
- Goldberg, A. I., Cohen, G., & Fiegenbaum, A. (2003). Reputation building: Small business strategies for successful venture development. *Journal of Small Business Management*, 41(2), 168-186.
- Gower, K. K. (2006). Public relations research at the crossroads. *Journal of Public Relations Research*, 18(2), 177-190.
- Gray, D., Davies, F., & Blanchard, K. (2004). Does use of public relations promote a higher growth rate in small firms?: The case of Lincolnshire. *Corporate Communications: An International Journal*, 9(4), 294-301.
- Green, Jr., S. E., Li, Y., & Nohria, N. (2009) Suspended in self-spun webs of significance: A rhetorical model of institutionalization and institutionally embedded agency. *Academy of Management Journal*, 52(1), 11-36.
- Greenwood, R. & Hinings, C. R. (1996). Understanding radical organizational change: Bringing together the old and the new institutionalism, *Academy of Management Review*, 21, 1022-1054.
- Groenland, E. (2002). Qualitative research to validate the RQ-dimensions. *Corporate Reputation Review*, 4(4), 308.
- Grunig, J. E. (2006). Furnishing the edifice: Ongoing research on public relations as a strategic management function. *Journal of Public Relations Research*, 18(2), 151-176.
- Grunig, L. A., Grunig, J. E., & Dozier, D. M. (2002). *Excellent public relations and effective organizations: A study of communication management in three countries*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Grunig, J. E., & Hunt, T. (1984). *Managing public relations*. Fort Worth: Harcourt Brace Jovanovich College Publishers.
- Harris Interactive (2009). *The annual RQ 2009 summary report: A survey of the U. S. general public using the Reputation Quotient*. Retrieved August 10, 2010 from http://www.harrisinteractive.com/vault/2009%20Annual%20Reputation%20Quotient%20Media%20Summary%20Report_public.pdf.

- Hart, R. P. (1985). Systematic analysis of political discourse: The development of DICTION. In K. R. Sanders, L. L. Kaid, & D. Nimmo (Eds.), *Political communication yearbook 1984* (pp. 97-143). Carbondale, IL: Southern Illinois University Press.
- Hart, R. P. (2000). *Diction 5.0: The text-analysis program*. Austin, TX: Digitext, Inc. Retrieved August 20, 2010, from <http://www.dictionsoftware.com/files/dictionmanual.pdf>
- Headd, B., & Kirchhoff, B. (2009). The growth, decline and survival of small businesses: An exploratory study of life cycles. *Journal of Small Business Management*, 47(4), 531-550.
- Heath, R. L., & Douglas, W. (1995). Constituency building: Determining employees' willingness to participate in corporate political activities. *Journal of Public Relations Research*, 7(4), 273-288.
- Heugen, P., & Lander, M. (2009). Structure! Agency! (And other quarrels): A meta-analysis of institutional theories of organization. *Academy of Management Journal*, 52, 61-85.
- Holloway, I. (1997). *Basic concepts for qualitative research*. Oxford, UK: Blackwell Science.
- Holsti, O. R. (1969). *Content analysis for the social sciences and humanities*. Reading, MA: Addison-Wesley.
- Hung, C. F. (2005). Exploring types of organization–public relationships and their implications for relationship management in public relations. *Journal of Public Relations Research*, 17(4), 393-426.
- Illia, L. (2010). How business disciplines discuss multiple identities in organizations. *Corporate Reputation Review*, 12(4), 327-344.
- Kalantaridis, C. (2004). Internationalization, strategic behavior, and the small firm: A comparative investigation. *Journal of Small Business Management*, 42(3), 245-262.
- Kioulos, S., Popescu, C., & Mitrook, M. (2007). Understanding influence on corporate reputation: An examination of public relations efforts, media coverage, public opinion, and financial performance from an agenda-building and agenda-setting perspective. *Journal of Public Relations Research*, 19(2), 147-165.
- Kjærgaard, A., Morsing, M., & Ravasi, D. (2011). Mediating identity: A study of media influence on organizational identity construction in a celebrity firm. *Journal of Management Studies*, 48(3), 514-543.

- Kohn, T. O. (1997). Small firms as international players. *Small Business Economics*, 9(1), 45–51.
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.
- Larson, M. S. (1977). *The rise of professionalism: A sociological analysis*. Berkeley, CA: University of California Press.
- Lawrence, T. B., Winn, M. I., & Jennings, P. D. (2001). The temporal dynamics of institutionalization. *Academy of Management Review*, 26, 624-644.
- Lazarsfeld, P. F., & Merton, R. K. (1948). Mass communication, popular taste and organized social action. In L. Bryson (Ed.), *The communication of ideas* (pp. 95-118). New York, NY: Harper and Row.
- Ledingham, J. A., & Bruning, S. D. (2000). *Public relations as relationship management: A relational approach to the study and practice of public relations*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Lee, S. Y., & Carroll, C. E. (in press). The emergence, variation, and evolution of corporate social responsibility in the public sphere, 1980-2004: The exposure of firms to public debate. *Journal of Business Ethics*.
- Lellis, J. (2007). *Voiced values: Communicating a local organizational identity for disability*. Unpublished doctoral dissertation. University of North Carolina, Chapel Hill.
- Lepoutre, J., & Heene, A. (2006). Investigating the impact of firm size on small business social responsibility: A critical review. *Journal of Business Ethics*, 67(3), 257-273.
- Lowry, D. T., (2008). Network TV news framing of good vs. bad economic news under Democrat and Republican presidents: A lexical analysis of political bias. *Journalism & Mass Communication Quarterly*, 74, 873-882.
- The National Nanotechnology Initiative. (2008). *Research and development leading to a revolution in technology and industry: Supplement to the president's FY 2008 budget*. Retrieved February 12, 2010, from http://www.nano.gov/NNI_08Budget.pdf.
- Nacos, B. L., Shapiro, R. Y., Young, J. T., Fan, D. P., Kjellstrand, T., & McCaa, C. (1991). Content analysis of news reports: Comparing human coding and a computer-assisted method. *Communication*, 12, 111-128.

- Newsom, D., Scott, A., & VanSlyke Turk, J. (1989). *This is PR: The realities of public relations* (4th ed.). Belmont, CA: Wadsworth.
- Malecki, E. J., and D.M.Tootle (1996). The Role of Networks in Small Firm Competitiveness. *International Journal of Technology Management*, 11(1/2), 43–57.
- McCombs, M. E. (2005). A look at agenda-setting: Past, present, and future. *Journalism Studies*, 6(4), 543-557.
- McCombs, M. E. & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*, 36, 176-187.
- McCombs, M. E., & Shaw, D. (1993). The evolution of agenda-setting research: Twenty-five years in the marketplace of ideas. *Journal of Communication*, 43, 58-67.
- McCoy, L. (2006). Keeping the institution in view: Working with interview accounts of everyday experience. In D. E. Smith, *Institutional ethnography as practice* (pp. 109-125). Lanham, MD: Rowman & Littlefield Publishers, Inc.
- Meijer, M. M., & Kleinnijenhuis, J. (2006). Issue news and corporate reputation: Applying the theories of agenda setting and issue ownership in the field of business communication. *Journal of Communication*, 56(3), 543-559.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *The American Journal of Sociology*, 82(2), 340-363.
- Miller, D., & Toulouse, J. M. (1986). Chief executive personality and corporate strategy and structure in small firms. *Management Science*, 32(11), 1389-1409.
- Miller, A. H., Wattenberg, M. P., & Malanchuk, O. (1986). Schematic assessments of presidential candidates. *American Political Science Review*, 80(2), 521-540.
- Mohan-Neill, S. (1995). The influence of firm's age and size on its environmental scanning activities. *Journal of Small Business Management*, 33(4), 10-21.
- Morsing, M. (1999). The media boomerang: The media's role in changing identity by changing image. *Corporate Reputation Review*, 2(2), 116-135
- Murphy, P. (2010). The intractability of reputation: Media coverage as a complex system in the case of Martha Stewart. *Journal of Public Relations Research*, 22(2), 209-237.
- Otterbourg, R. (1966). Public relations for smaller companies. *Public Relations Quarterly*, 11(1), 2-54.

- Owen, W. F. (1984). Interpretive themes in relational communication. *Quarterly Journal of Speech*, 70, 274-287.
- Park, D.J., & Berger, B. K. (2004). The presentation of CEOs in the press, 1990-2000: Increasing salience, positive valence, and a focus on competency and personal dimensions of image. *Journal of Public Relations Research*, 16(1), 93-125.
- Pedersen, J. S., & Dobbin, F. (2006). In search of identity and legitimation: Bridging organizational culture and neoinstitutionalism. *American Behavioral Scientist*, 49(7), 897-907.
- Petkova, A. P., Rindova, V. P., & Gupta, A. K. (2008). How can new ventures build reputation? An exploratory study. *Corporate Reputation Review*, 11(4), 320-334.
- Pratt, M. G., & Foreman, P. O. (2000). Classifying managerial responses to multiple organizational identities. *Academy of Management Review*, 25(1), 18-42.
- Pratten, C. F. (1991). *The competitiveness of small firms*. Cambridge: Cambridge University Press.
- Reputation Institute (2010). *History of reputation management*. Retrieved on August 10, 2010 from <http://www.reputationinstitute.com/advisory-services/retrak>.
- Riffe, D., Lacy, S., & Fico, F. G. (2005). *Analyzing media messages: Using qualitative content analysis in research* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Rindova, V. P., Petkova, A. P., & Kotha, S. (2007). Standing out: How new firms in emerging markets build reputation. *Strategic Organization*, 5(1), 31-70.
- Rindova, V. P., Williamson, I. O., Petkova, A. P., & Sever, J. M. (2005). Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. *Academy of Management Journal*, 48(6), 1033-1049.
- Roberts, P. W., & Dowling, G. R. (2002). Corporate reputation and sustained superior financial performance. *Strategic Management Journal*, 23(12), 1077-1093.
- Roco, M. C., & Bainbridge, W. S. (2007). *Nanotechnology: Social implications I: Individual perspectives*. The Netherlands: Springer.
- Rokeach, M. (1973). *The nature of human values*. New York: The Free Press.
- Rosa, J. A., Porac, J. F., Runser-Spanjol, J., & Saxon, M. (1996). Sociocognitive dynamics in a product market. *Journal of Marketing*, 63, 64-77.

- Schlesinger, P. (1987). On national identity: Some conceptions and misconceptions criticized. *Social Science Information*, 26, 219–264.
- Sha, B. (2009). Exploring the connection between organizational identity and public relations behaviors: How symmetry trumps conservation in engendering organizational identification. *Journal of Public Relations Research*, 21(3), 295–317.
- Shan, W. (1990). An empirical analysis of organizational strategies by entrepreneurial high-technology firms. *Strategic Management Journal*, 11(2), 129–139.
- Shapiro, G. (1997). The future of coders: Human judgments in a world of sophisticated software. In C. W. Roberts (ed.), *Text analysis for the social sciences: Methods for drawing statistical inferences from texts and transcripts* (pp. 225–238). Mahwah, NJ: Lawrence Erlbaum.
- Simsek, Z., Heavey, C., & Veiga, J. F. (2010). The impact of CEO core self-evaluation on the firm's entrepreneurial orientation. *Strategic Management Journal*, 31, 110–119.
- Singleton, R., & Straits, B. C. (2005). *Approaches to social research*. New York: Oxford University Press.
- Smith, C. (2007). On governance and agency issues in small firms. *Journal of Small Business Management*, 45(1), 176–178.
- Spradley, JP (1979). *The ethnographic interview*. New York: Holt, Rinehart & Winston.
- Srivastava, R. K., Crosby, J. R., McInish, T. H., Wood, R. A., & Capraro, A. J. (1997). Part IV: How do reputation affect corporate performance?: The value of corporate reputation: Evidence from the equity markets. *Corporate Reputation Review*, 1(1), 62–68.
- Staw, B. M., & Epstein, L. D. (2000). What bandwagons bring: Effects of popular management techniques on corporate performance, reputation, and CEO pay. *Administrative Science Quarterly*, 45(3), 523–556.
- Stephens, L. F. (2005). News narratives about nano S&T in major U.S. and non-U.S. newspapers. *Science Communication*, 27(2), 175–199.
- Street, C., & Cameron, A. (2007). External relationships and the small business: A review of small business alliance and network research. *Journal of Small Business Management*, 45(2), 239–266.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–610.

- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Los Angeles: Sage.
- U.S. Small Business Administration. (2009a). *Small business act* (public law 85-536, as amended). Retrieved February 14, 2010 from <http://www.sba.gov/aboutsba/principles/index.html>.
- U.S. Small Business Administration. (2009b). Frequently asked questions: Advocacy: the voice of small business in government. *SBA Office of Advocacy*. Retrieved February 14, 2010 from <http://www.sba.gov/advo/research/>.
- U.S. Small Business Administration. (2009c). The small business economy: A report to the President. *SBA Office of Advocacy*. Retrieved February 14, 2010 from <http://www.sba.gov/advo/research/>.
- Vinten, G. (1999). Corporate communications in small- and medium-sized enterprises. *Industrial and Commercial Training*, 31(3), 112–119.
- Voss, Z. G., Cable, D. M., & Voss, G. B. (2006). Organizational identity and firm performance: what happens when leaders disagree about “who we are?”. *Organization Science*, 17(6), 741-755.
- Walsh, G., & Wiedmann, K. (2004). A conceptualization of corporate reputation in Germany: An evaluation and extension of the RQ. *Corporate Reputation Review*, 6(4), 304-312.
- Weaver, D., & Bimber, B. (2008). Finding news stories: A comparison of searches using LexisNexis and Google news. *Journalism & Mass Communication Quarterly*, 85, 51-530.
- Weigelt, K., & Camerer C. (1988). Reputation and corporate strategy. *Strategic Management Journal*, 9(5), 443-454.
- Whetten, D. A. (2006). Albert and Whetten revisited: Strengthening the concept of organizational identity. *Journal of Management Inquiry*, 15, 219-234.
- Whetten, D. A., & Godfrey, P. C. (1998). *Identity in organizations: Building theory through conversations* (Eds.). Thousand Oaks, CA: Sage Publications.
- Whetten, D. A., & Mackey, A. (2002). A social actor conception of organizational identity and its implications for the study of organizational reputation. *Business & Society*, 41(4), 393-414.
- Williams, L. (2008). The mission statement. *Journal of Business Communication*, 45(2), 94-119.

Wright, C., & Rwabizambuga, A. (2006). Institutional pressures, corporate reputation, and voluntary codes of conduct: An examination of the Equator Principles. *Business & Society Review*, 111(1), 89-117.